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THE
COTTAGE GARDENERS'
DICTIONARY.

DESCRIBING
THE PLANTS, FRUITS, AND VEGETABLES DESIRABLE FOR THE GARDEN,
AND EXPLAINING THE TERMS AND OPERATIONS EMPLOYED
IN THEIR CULTIVATION.

WITH
AN ALPHABETICAL LIST OF SYNONYMES.

EDITED BY
GEORGE W. JOHNSON, ESQ.,
EDITOR OF "THE COTTAGE GARDENER," "THE GARDENERS' ALMANACK," ETC.

Seventh Edition.

LONDON:
HENRY G. BOHN, YORK STREET, COVENT GARDEN.

1863.

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GEORGE W. JOHNSON, ESQ.,
EDITOR OF "THE COTTAGE GARDENER," "THE GARDENER," "LAWN & GARDEN."

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PREFACE TO FIRST EDITION.

It is not presumptuous, we think, to express our conviction that this Volume will supply a want which has long existed in gardening literature. We so think because all previous Dictionaries concerning plants are rendered more or less deficient for horticultural purposes by being too much occupied with botanical details; by being too large and expensive for general use; by being too old to include more than a small number of the plants now cultivated; or from being the production of one writer, necessarily imperfect in one or more departments in which his knowledge happened to be deficient. It is believed that THE COTTAGE GARDENERS' DICTIONARY is free from all these objections. Its botanical details are no more than sufficient as a guide to fuller knowledge of the plants; it is the cheapest ever issued from the press; it includes all plants known as desirable for culture at the date of publication; and every detail of cultivation is either from the pen, or has passed under the supervision, of those well-known for appropriate skilfulness. We need only add, that we have endeavoured clearly to explain all the usual gardening occupations and terms; to give accurate information relative to soil and manures, and to detail minutely the culture of each plant; as well as to admit none but such as are either desirable to have in cultivation, or are in some way interesting.

It being always satisfactory to know who are our teachers, we think it desirable and just to all parties to state that Mr. BEATON, Gardener to Sir W. Middleton, Bart., has furnished all the headings descriptive of each *genus*, the derivation of their names, with their botanical classification and nomenclature. To Mr. FISH, Gardener to Colonel Sowerby, we are similarly indebted for the general cultivation of each *genus of flowering and ornamental plants*; to Mr. ERRINGTON, Gardener to Sir P. Egerton, Bart., for the *fruit culture* and selection of varieties; to Mr. APPLEBY, Floricultural Manager to Messrs. Henderson, for the same information relative to *Florists' Flowers*; whilst on Mr. BARNES, Gardener to Lady Rolle, Mr. WEAVER, Gardener to the Warden of Winchester College, and the EDITOR, have devolved the tenants of the *kitchen garden*. The miscellaneous essays have been furnished by various hands, too numerous and too combined to be particularized; but the Editor does not shrink from being responsible for them.

PREFACE TO SECOND EDITION.

IN a space of time unusually short for a work of this kind, a very large edition has been sold; and, in preparing a New Edition, the Editor's effort has been to correct such faults and deficiencies as have been detected since the publication of the first, and to add the New Plants which subsequently have been discovered. These, with the very copious List of Synonymes, will render this Dictionary still more useful.

It is proposed, from time to time, to publish Supplements, containing all New Plants, with notes on such novelties as merit the attention of the Amateur and Gardener.

December, 1856.

EXPLANATIONS.

It seems only necessary to observe that, to facilitate the proper pronunciation of the names, the vowel in the syllable on which the emphasis is to be laid is denoted by an accent placed after the vowel:—Thus, in *ABE'LIA*, the emphasis is laid upon the *BE*; and in *floribu'nda* on the *bun*. The other particulars scarcely need any explanation. The specific name of each plant is translated into English; and then follows the height of the plant (where the figure or figures stand alone, either feet or the fraction of a foot being intended); the colour of the flower; the month when it begins to bloom; the native place; and the year of introduction.

THE

COTTAGE GARDENERS' DICTIONARY.

ABE

ABE'LE TREE. The White Poplar (*Populus alba*).

ABE'LIA. (After *Dr. Abel*, Physician to the embassy of Lord Amherst to China. Nat. ord., *Caprifoliæ* [*Caprifoliaceæ*]. Linn. Sys., 5-Pentandria 1-Monogynia.)

Half-hardy evergreen shrubs; may be turned out into the borders in summer. Cuttings in summer, in light turfy loam and peat, and layers in spring.

A. floribunda (many-flowered). 3. Rosy-purple. Requires a little peat. March. Mexico. 1842.

— *rupestris* (rock). 5. Pink and white. September. China. 1844.

— *triflora* (three-flowered). 5. Pale red. September. Hindostan.

— *uniflora* (one-flowered). 3. China.

A'BIES. See *PINUS*.

ABO'RTION. Too early or imperfect development. In fruit, this frequently occurs from a defect in the male or female organs. If from the first, it may be remedied by using pollen from other plants.

A'BRI'COCK. An old mode of spelling *APRICOT*. (*Armeni'aca vulga'ris*.)

ABRA'XAS grossularia'ta. Magpie Moth. The caterpillar of this moth often infests the leaves of the gooseberry bush, as well as of the currant, sloe, and even the peach, in early summer. It is common during the evenings of July and August. Usually about one and a half-inch across the expanded fore-wings, which are very slightly yellowish-white, variously spotted with black, more or less like those in our drawing, for the marks are never uniform; and there is a band of pale orange across each of the fore-wings. The hind-wings are of the same colours, but without any

ABR

orange colouring. The body is orange, spotted with black. The female deposits her eggs upon the leaf of a gooseberry or currant tree, and from these little looping caterpillars come forth in September (see a drawing of these and of the Chry-



salis in *The Cottage Gardener*, iv. 15), and surviving the winter, begin to feed again upon the leaves as soon as these open in the spring. They are full-grown towards the end of May, and enter the chrysalis state between that time and the end of June. In this state they remain for about three weeks, and then the perfect moth comes forth. The caterpillar is yellowish white, with an orange stripe, more or less complete, on each side, and with numerous black spots, the largest on the back. The chrysalis is black, with orange circles round the pointed end. The caterpillar prefers the leaves of the gooseberry and red currant; but, after stripping these to their very stalks, it will feed upon those of the sloe, peach, and almond. Hand-picking, dusting with the powder of white hellebore, and burning the leaves early in autumn, are the best remedies and prevention against this marauder.

ABRO'MA. (From *a*, not, and *broma*, food; on account of its deleterious qualities. Nat. ord., *Byttneriads* [Byttneriaceæ]. Linn., 18-*Polyadelphia* 1-*Decandria*.)

Stove evergreen shrubs. Seed in March in heat; or cuttings of half-ripe wood, April, in strong heat, under a bell-glass; loam and peat. Summer temp., 65° to 75°; winter, 50° to 55°.

A. augusta (smooth-stalked). 10. August. Purple. E. Ind. 1770.
— *fastuosa* (prickly-stalked). 10. June to October. Purple. N. S. Wales. 1800.

ABRO'NIA. (From *abros*, its involucre being delicate. Nat. ord., *Nyctagos* [Nyctaginaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Mirabilis*.)

Half-hardy perennial trailers. Slips and seeds; sandy peat, with a little light loam.

A. mellifera (honey-bearing). †. July. Orange. California. 1826.
— *pulehella* (neat). †. July. Pink. California. 1848.
— *rosea* (rose-coloured). †. California. 1847.
— *umbellata* (umbel-flowered). †. April and May. Pink. California. 1823.

A'BRUS precat'orius. Wild Liquorice. (From the leaves being soft and delicate, *abros*, and prayer, *precatorius*, because its seeds are used for rosaries. Nat. ord., *Mimosads* [Fabaceæ]. Linn., 17-*Dialophia* 1-*Decandria*.)

Stove climber. Cuttings in sand, under a glass; sand and peat.

12. Pale purple. March to May. W. Ind.

ABU'TILON. (Arabic name for a plant like a mallow. Nat. ord., *Mallowworts* [Malvaceæ]. Linn., 16-*Monadelpia* 8-*Polyandria*.)

Greenhouse evergreen shrubs. Cuttings in sand, under a close frame or a glass, during summer. Light, rich loam and peat. Winter temp., 35° to 40°.

A. aurantiacum (orange-colored). Orange. Brazil.
— *Bedfordianum* (D. of Bedford's). 15. Yellow and red. November. Brazil. 1838.
— *graveolens* (strong-scented). 6. Orange and red. E. Ind. 1842. Stove.
— *insigne* (handsome-flowered). White and carmine. January. New Grenada.
— *integerrimum* (whole-leaved). 14. Yellow. May. New Grenada. Stove.
— *pæoniflorum* (peony-flowered). Pink. January. Brazil. 1845.
— *pulchellum* (pretty). 8. White. May. N. S. Wales. 1821.
— *rufinerve* (red-nerved). Pale yellow. August. Rio Janeiro. 1845.
— *striatum* (striped). 10. Orange and red stripes; continually blooming. Brazil. 1837. In Hampshire and south of England, large old plants flower freely turned out under a south wall, being there all but hardy.
— *venosum* (veined). Orange and red stripes. July.

A. vitifolium (vine-leaved). 6. White. July. Chili. 1837. This is more hardy than the other species.

ACA'CIA. (From *akazo*, to sharpen, on account of the prickliness of the species first noticed. Nat. ord., *Mimosads* [Fabaceæ]. Linn., 23-*Polygamia* 1-*Monæcia*.)

This genus is composed almost exclusively of stove and greenhouse shrubs and trees. Sandy loam and turfy peat; cuttings of the shoots taken off at a joint, and pieces of the large roots, in sand and peat, under a glass, in bottom heat; but most of them will ripen their seeds in a favourable situation. By seeds; this is the best mode of propagating them: sow in a slight hot-bed in February or March; soak the seeds in warm water for several hours before sowing. Although the Acacias are all more or less beautiful, yet most of them are so seldom seen under cultivation, that we have omitted great numbers. Those marked thus * are most desirable. Winter temp. for *stove* species, 55° to 60°; summer, 65° to 80°; *greenhouse* species, winter temp., 35° to 40°.

STOVE SPECIES.

A. acanthocarpa (spine-podded). 10. Pale red. New Spain. 1822.
— *Acapulcensis* (Acapulcan). White. Acapulco. 1825.
— *Arabica* (Arabian). 20. White. E. Ind. 1820. This tree produces gum arabic.
— *Bancroftiana* (Bancroft's). 20. Jamaica.
— *brachyacantha* (short-spined). 4. S. Amer. 1824.
— *Burmanniana* (Burmans's). 6. Ceylon. 1818.
— *cæsia* (grey). 20. Yellow. E. Ind. 1773.
— *catechu* (catechu). 49. Pale yellow. E. Ind. 1790. This tree produces that most powerful astringent, catechu. The bark of all the other species also abounds in astringent principle, useful for tanning.
— *centrophylla* (spur-leaved). 20. White. Jamaica. 1818.
— *ceratonia* (ceratonian). 3. White. S. Amer. 1800.
— *chrysostachys* (golden-spiked). 15. Mauritius. 1824.
— *concinna* (neat). 20. White. E. Ind. 1823.
— *Concordiana* (Concord's). 12. E. Ind. 1818.
— *copallina* (copal). 20. 1825.
— * *cornigera* (horn-bearing). 15. Pale yellow. S. Amer. 1692.
— *coronillæfolia* (coronilla-leaved). 10. N. Africa. 1817.
— *diptera* (two-winged). 20. White. S. Amer. 1818.
— *dumosa* (bushy). 20. E. Ind. 1818.
— *eburnea* (ivory-thorned). 5. Yellow. E. Ind. 1792.
— *edulis* (eatable-fruited). 20. E. Ind. 1820.
— * *farnesiana* (farnesian). 15. Yellow. July. St. Domingo. 1656.
— *ferruginea* (rusty). E. Ind. 1818.
— *filiæa* (fern-leaved). 20. Mexico. 1825.
— *formosa* (beautiful). 10. White. Mexico. 1825.
— *frondosa* (leafy). 30. White. E. Ind. 1816.
— *fruticosa* (shrubby). 4. E. Ind. 1820.
— *giraffeæ* (cameleopard's). 40. Cape of Good Hope. 1816.
— *gratula* (grateful). 10. Brazil. 1820.
— *Guianensis* (Guiana). White. Cayenne. 1803.
— *Guayaquilensis* (Guayaquil). 10. Guayaquil. 1818.

- A. hamatoxylon* (bloody-wooded). 20. Yellow, white. Cape of Good Hope. 1816.
 — *heteromalla* (one side woolly-leaved). Yellow. June. N. Holland. 1818.
 — *Intsia* (Intsia). 20. Yellow, white. E. Ind. 1778.
 — * *Jacaranda* (Jacaranda-like). 20. Yellow, white. S. Amer. 1825.
 — *kalkora* (kalkora). 45. E. Ind. 1818.
 — *kermesina* (kermesina). Purple.
 — *latistiqua* (broad-podded). 10. Pink. May. W. Ind. 1777.
 — *laurifolia* (laurel-leaved). 4. Yellow. May. Tanna. 1775.
 — *lebbeek* (loebach). 20. Pink. May. Egypt. 1823.
 — *lentiscifolia* (lentiscus-leaved). 20. Mexico. 1824.
 — *leptophylla* (slender-leaved). 20. S. Amer. 1824.
 — *leucophylla* (white). 12. Pale yellow. E. Ind. 1812.
 — *lu'cida* (shining). 40. E. Ind. 1820.
 — *macranthoides* (long-spined). 20. Jamaica. 1820.
 — *Mangium* (Mangium's). 10. Yellow. E. Ind. 1820.
 — *microphylla* (small-leaved). 10. Caraccas. 1826.
 — *odoratissima* (most fragrant). 40. White. E. Ind. 1790.
 — *oligophylla* (few-leaved). 4. Yellow. 1817.
 — *pinna'ta* (feather-leaved). 20. Yellow. E. Ind. 1773.
 — *pilo'sa* (downy). 30. White. Jamaica. 1800.
 — *plumosa* (feathery-leaved). 20. Yellow. A climber.
 — *Portoricensis* (Porto Rico). 6. White. July. W. Ind. 1824.
 — *prismatica* (prismatic). 6. Yellow. 1818.
 — * *pulcherrima* (fairest). 10. Brazil. 1823.
 — *quadrangul'ris* (four-angled). 4. White. August. 1825.
 — *Rohria'na* (Rohr's). 30. White. 1823.
 — *Ro'ssii* (Ross's). 40. 1822.
 — *sarmento'sa* (twiggy). 10. 1820. A climber.
 — *sca'ndens* (climbing). 10. Purple. India. 1780. A climber.
 — *semicordata* (half-heart-shaped). 40. E. Ind. 1820.
 — *Senegal* (Senegal). 30. White. Africa. 1823.
 — *Sericea* (Shireesh). 20. E. Ind. 1822.
 — *specio'sa* (showy). 10. Purple. August. E. Ind. 1742.
 — *Spi'nt* (Spine's). 15. Red, yellow.
 — *stipulata* (large-stipuled). 20. White. Bengal. 1800.
 — *tamarindifolia* (tamarind-leaved). 4. White. W. Ind. 1774.
 — *tomento'sa* (woolly). 20. E. Ind. 1816.
 — *trichodes* (hairy). 10. Pale yellow. Peru. 1818.
 — *va'ga* (common). 40. White. Brazil. 1818.
 — *venusta* (charming). 6. Pink. S. Amer. 1816.
 — *vera* (true, — Egyptian thorn). 12. White. July. Egypt. 1596.
 — *virescens* (strong-growing). 20. S. Amer. 1829.
 — *Wallichia'na* (Wallich's). 10. E. Ind. 1820.

GREENHOUSE SPECIES.

- A. abietina* (fir-like). 4. Yellow. May. N. Holland. 1823.
 — * *affinis* (kindred). 5. Yellow. May. N. Holland. 1822. This is the Green Wattle Mimosa of the settlers.
 — *ala'ta* (wing-stalked). 6. Yellow. May. N. Holland. 1803.
 — *ame'na* (pleasing). 5. Yellow. May. N. Holland. 1820.
 — *angulata* (angular). 25. Yellow. June. N. Holland. 1820.

- A. angustifolia* (narrow-leaved). 2. Yellow. April. N. S. Wales. 1816.
 — * *armata* (armed, simple-leaved). 10. Yellow. May. N. Holland. 1803.
 — *aspera* (rough). 4. Yellow. May. N. Holland. 1824.
 — *biflora* (two-flowered). 3. Yellow. May. N. Holland. 1803.
 — *binervata* (two-nerved). 8. Yellow. May. N. Holland. 1824.
 — *brevifolia* (short-leaved). 3. Yellow. May. N. Holland. 1820.
 — *bre'vipes* (short-stalked). 6. Yellow. N. S. Wales.
 — *buxifolia* (box-leaved). 4. Yellow. April. N. Holland. 1824.
 — *calamifolia* (reed-leaved). Yellow. May. N. Holland. 1823.
 — *canaliculata* (channeled). Yellow. May. N. Holland. 1824.
 — *celastrifolia* (celastrus-leaved). 6. Yellow. May. Swan River. 1842.
 — *ciliata* (fringe-winged). 8. Yellow. May. N. Holland. 1803.
 — *cinerascens* (ash-coloured). 10. Yellow. May. N. Holland. 1824.
 — *cochlearis* (spoon-leaved). 4. Yellow. May. N. Holland. 1818.
 — *conferta* (crowded). Yellow. April. N. Holland. 1824.
 — *coriacea* (leathery-leaved). 5. Yellow. May. N. Holland. 1825.
 — *crassica'rrpa* (thick-fruited). 6. Yellow. April. N. Holland. 1824.
 — *cultrata* (knife-shaped). 15. Yellow. April. N. Holland: 1820. Same as *cultriformis*.
 — *cuneata* (wedge-shaped). Yellow. April. Swan River. 1837.
 — *cyanophylla* (blue-leaved). Yellow. April. Swan River. 1838.
 — *Cyclo'pis* (Cyclo'pis-like). 4. Yellow. May. N. Holland. 1824.
 — *cyno'rum* (Swan River). 2½. Yellow. Swan River. 1852.
 — *Daviesia'folia* (Daviesia-leaved). 6. Yellow. June. N. Holland. 1817.
 — * *dealbata* (whitened). 10. Yellow. May. N. Holland. 1823.
 — * *decepiens promors'a* (deceiving, bitten-leaved). 3. Yellow. May. N. Holland. 1830.
 — * *decur'rens* (decurrent). 6. Yellow. June. N. S. Wales. 1790.
 — *denti'fera* (tooth-bearing). Yellow. April. Swan River. 1839.
 — *depe'ndens* (weeping). Yellow. March. Van Dieman's Land. 1819.
 — *detinens* (detaining). 3. Yellow. May. N. Holland. 1828.
 — * *Dillwynia'folia* (Dillwynia-leaved). 3. Yellow. May. N. Holland. 1828.
 — *di'ptera* (two-winged).
 — — *erio'ptera* (woolly-winged). Yellow. September. Swan River. 1840.
 — *discolor* (two-coloured). 10. Yellow. May. N. S. Wales. 1784.
 — *divaricata* (straggling). 6. White. April. N. Holland. 1827.
 — * *dolabriformis* (hatchet-leaved). 6. Yellow. June. N. Holland. 1814.
 — *echinula* (prickly). 4. Yellow. May. N. Holland. 1824.
 — *elongata* (long-branched). 6. Yellow. May. N. Holland. 1824.
 — *emarginata* (single-notched-leaved). 8. Yellow. April. N. Holland. 1824.

- A. erioca'rpa* (woolly-fruited). Pale yellow. April. N. Holland. 1845.
 — *erica'dus* (woolly-bracted). Yellow. June. N. Holland. 1849.
 — *Esterha'zia* (Prince Esterhazy's). 4. Yellow. May. N. Holland. 1824.
 — * *falca'ta* (sickle-leaved). 6. Yellow. May. N. S. Wales. 1790.
 — *falcifo'rnis* (sickle-shaped). 6. Yellow. May. N. Holland. 1818.
 — * *floribu'nda* (many-flowered). 6. Yellow. May. N. S. Wales. 1825.
 — *glau'ca* (milky-white). 5. White. July. S. Amer. 1696.
 — * *gra'ndis* (great). Golden yellow. March. N. Holland. 1846.
 — *grave'olens* (strong-smelling). 15. Yellow. May. N. Holland. 1820.
 — *gummi'fera* (gum-bearing). 30. Guinea. 1823.
 — *hastula'ta* (halbert-leaved). 4. Yellow. May. N. Holland. 1824.
 — *heteroca'ntha* (varied-prickled). 15. Cape of Good Hope. 1816.
 — *heterophy'lla* (variable-leaved). 5. Yellow. May. N. Holland. 1824.
 — *hispidi'ssima* (hairiest). 3. Yellow. Swan River. 1800.
 — * *holoseri'cea* (all silky). Yellow. April. N. Holland. 1820.
 — *homoma'lla* (equal-wooled). 6. Yellow. June. N. Holland. 1822.
 — * *Huge'l'i* (Baron Hugel's). Pale yellow. February. N. Holland. 1846.
 — *humifu'sa* (trailing). N. Holland. 1820.
 — *hy'brida* (hybrid). 5. Yellow. May. Hybrid. 1822.
 — *interme'dia* (intermediate). 8. Yellow. N. Holland.
 — *interte'ata* (interwoven). 6. Yellow. May. N. Holland. 1824.
 — * *juniperi'na* (juniper-leaved). 6. Yellow. May. N. S. Wales. 1790.
 — *Lambertia'na* (Lambert's). Purple. May. Mexico. 1818.
 — *lan'i'gera* (woolly). 6. Yellow. April. N. Holland. 1824.
 — *Lawso'ni* (Lawson's). N. S. Wales.
 — *leptoca'rpa* (slender-podded). 6. Yellow. April. N. Holland. 1821.
 — *leucophy'lla* (white-leaved). 6. Yellow. May. N. Holland. 1822.
 — *ligula'ta* (strap-shape-leaved). Yellow. March. N. S. Wales. 1818.
 — *linea'ris* (linear). 3. Yellow. May. N. S. Wales. 1820.
 — * *longi'ssima* (longest-leaved). 4. Yellow. May. N. S. Wales. 1819.
 — *mo'llis* (soft). 6. Yellow. July. N. Holland. 1810.
 — *platyphy'lla* (broad-leaved). 10. Yellow. June. N. Holland. 1820.
 — *Richardo'ni* (Richardson's). 10. Yellow. June. N. Holland. 1822.
 — *serica'ta* (silky). Yellow. April. N. Holland. 1820.
 — *Si'msi* (Sims's). Yellow. April. N. Holland. 1819.
 — * *so'phora* (sophora-podded). 10. Yellow. May. Van Dieman's Land. 1805.
 — * *specta'bilis* (remarkable). Yellow. April. N. S. Wales. 1837.
 — *squama'ta* (scaly). Yellow. April. N. Holland. 1836.
 — *stenophy'lla* (short-leaved). Yellow. March. N. S. Wales. 1818.

- A. stri'cta* (double-headed). 2. Yellow. March. N. S. Wales. 1790.
 — *stro'mbulife'ra* (spiral-podded). 8. Peru. 1825.
 — *suave'olens* (sweet-scented). 4. Yellow. April. N. S. Wales. 1790.
 — *subula'ta* (awl-shaped). 4. Yellow. May. N. Holland. 1824.
 — *sulca'ta* (furrowed-leaved). 2. Yellow. July. N. Holland. 1803.
 — * *taxifo'lia* (yew-leaved). 4. Yellow. May. N. Holland. 1823.
 — *trapezo'i'des* (trapezium-leaved). 4. Yellow. April. N. Holland. 1810.
 — *trinervu'ta* (three-nerved). 6. Yellow. April. N. Holland. 1820.
 — *tri'stis* (dull green-coloured). 18. Yellow. March. N. Holland. 1828.
 — *umbella'ta* (umbellate). Yellow. April. N. Holland. 1819.
 — *uncina'ta* (hook-leaved). 4. Yellow. May. N. S. Wales. 1819.
 — *undulafo'lia* (wave-leaved). 4. Yellow. May. N. Holland. 1824.
 — *urophy'lla* (tail-leaved). Pale yellow. April. Swan River. 1836.
 — *vernici'flua* (varnish-flowing). 6. Yellow. April. N. Holland. 1818.
 — * *verticilla'ta* (whorl-leaved). 10. Yellow. April. Van Dieman's Land. 1780.
 — *verticilla'ta angu'sta* (narrow-leaved). 10. Yellow. April. N. Holland. 1780.
 — * — *latifo'lia* (broad-leaved). 10. Yellow. April. N. Holland. 1780.
 — *vesti'ta* (clothed). 6. Yellow. June. N. Holland. 1820.
 — *vimina'tis* (twiggy). Yellow. April. N. Holland. 1820.
 — *virga'ta* (branchy). 4. Yellow. May. N. Holland. 1824.
 — *viridira'mis* (green-branched). 4. Yellow. Cape of Good Hope. 1816.
 — *vomerifo'rnis* (plough-share-shaped). Yellow. April. N. Holland. 1818.

HALF-HARDY SPECIES.

- A. julibri'ssia* (silk-tree). 20. White. August. Levant. 1745.

ACANTHOPH'PIUM. (From *acanthos*, a thorn, and *ippon*, a horse; but why, is not apparent. Nat. ord., *Orchids* [*Orchidaceæ*]. Linn., 20-*Gynandria* 1-*Monandria*.)

Loam and peat in a rough state; division or pseudo bulbs; 50° to 60° when at rest; 70° to 80° when growing.

- A. bi'color* (two-coloured). Yellow and red. June. Ceylon. 1833.
 — *Java'nicum* (Javanese). Crimson, rose. August. Java. 1844.
 — *striat'um* (striped-flowered). White-striped. June. Nepal.
 — *Sylhete'nse* (Sylhet). White. June. Sylhet. 1837.

ACANTHOSTA'CHYS. (*Acanthos*, a spine, *stachys*, a spike. Nat. ord., *Bromeliads* [*Bromeliaceæ*]. Linn., 6-*Hexandria* 1-*Monogynia*.)

Stove herbaceous plant. Suckers; equal parts of sand, leaf-mould, and decayed wood.

- A. strobila'cea* (cone-fruited). Red and yellow. June. Brazil. 1840.

ACA'NTHUS. Bear's Breech. (*Acanthos*, a spine; some being prickly. Nat. ord., *Acanthads* [*Acanthaceæ*]. Linn., 14-*Didynamia* 2-*Angiospermia*.)

Herbaceous plants. Seeds, and root division; light rich garden-soil.

HARDY SPECIES.

A. Hispanicus (Spanish). 2. White. August. Spain. 1700.

— *molliis* (soft). 3. White. August. Italy. 1548. The leaves of this are said to have given rise to the Corinthian style in architecture.

— *ni'ger* (black). 3. White. August. Portugal. 1759.

— *spinosis'simus* (most-spiny). 3. White. August. South of Europe. 1629.

— *spinosus* (spiny). 3. White. August. Italy. 1629.

GREENHOUSE SPECIES.

A. carduifolius (thistle-leaved). 1. Blue. August. Cape of Good Hope. 1816.

A'CARUS. The Mite. Those most frequent in our gardens are the following:

A. tellarius. The Red Spider. This is one of the gardener's greatest pests,



NATURAL SIZE, AND MAGNIFIED.

though so small as to be scarcely visible to the naked eye; yet when a plant is much infested by them it has the appearance of being scorched. Colour sometimes yellowish, at others brown, but oftener a dull red; on each side of its back is a blackish spot. In November it may be found under the bark of the lime-tree; but at all times it is to be found in greenhouses and hothouses that have been kept too hot and dry. In the summer-time it may be found, occasionally in myriads, upon the under sides of the leaves of kidney-beans and limes. Even the apple, pear, and plum suffer much from its ravages, as well as various in-door plants. The injury they

occasion by sucking chiefly the elaborated sap, and by their webs embarrassing the breathing of the plant through the pores of its leaves, is told by the brown colour which these assume. To destroy these insects in the greenhouse, or hothouse, or cucumber-frame—for they attack this plant also—there is no plan so effectual as heating the hot-water pipes of the houses, or having hot-water plates, filled with boiling water, placed in the frames, sprinkling upon them flowers of sulphur, which begin to vaporize at a heat of 170°, and then shutting up the houses or frames. The vapour of sulphur is fatal to these insects where the air is thoroughly impregnated with it; and the work of destroying them is completed by syringing the infested plants with water, continuing rather frequently the operation. This last is the most practical remedy to plants in our borders, unless they can be covered over so that the fumes of the sulphur may be confined whilst the sulphur is volatilized over a hot-water plate. Potted plants may be submitted to the vapour of sulphur in a similar way; but in every instance be cautious that the sulphur does not burn, or you will kill your plants. The vapour of spirit of turpentine is said to be as effectual as sulphur. On walls, the best plan is to beat up soft soap in warm water, three ounces to the gallon; and to add as much finely-dissolved clay as will make the whole a thick paint. To this add three or four handfuls of sulphur, and keep the mixture well stirred whilst applying it. Let it be daubed on every open space of walling the brush can reach; and, if colour is an object, the glaring yellow can be readily subdued by adding plenty of soot, which by some is considered a necessary ingredient. A similar mixture may be daubed over the stems of ordinary fruit-trees, choosing in this, as well as in the former, the beginning of April for the operation. Most good gardeners mix a considerable quantity of sulphur with the lime-wash which is applied to hot-house walls.

A. holosericeus is another species, distinguishable to an unscientific eye chiefly by their scarlet colour. To destroy them there is no plan equal to subjecting them to the vapour of sulphur.

A. hortensis. The Garden Mite. Thorax ochreous, abdomen white; has been

found upon the roots of the cucumber, upon which it is said to prey. We believe it to be the same *Acanus* often so abundant upon the root of cabbages affected with the Ambury.

A. geniculatus is a minute, brownish-red, shining mite, congregating, during spring, in prodigious numbers upon the bark of the plum and other fruit trees, near the base of the small branches, and looking like a gummy exudation. They all injure the plants they infest by sucking their juices; and, where the fumes of sulphur cannot be applied, as to the stems of trees, and to the soil, we recommend an application of spirit of turpentine, or gas ammoniacal liquor.

ACCLIMATIZATION is rendering a plant capable of yielding the production desired from it, in a climate differing from that in which it is a native. In our climate it is usually required to enable a plant to endure lower temperatures than those to which it has been accustomed; and this, though most are intractable, is more easy than inducing the natives of colder regions to live in our latitudes. When anew plant arrives from a tropical country it is desirable to use every precaution to avoid its loss; but so soon as it has been propagated from, and the danger of such loss is removed, from that moment ought experiments to commence, to ascertain whether its acclimatization is attainable. This should be done, because the nearer such a desirable point can be attained the cheaper will be its cultivation, and, consequently, the greater will be the number of those who will be able to derive pleasure from its growth. Hence it is very desirable that an extended series of experiments should be instituted, to ascertain decisively whether many of our present greenhouse and stove plants would not endure exposure to our winters if but slightly, or not at all protected. It may be laid down as a rule, that all Japan plants will do so in the southern-coast counties of England; but it remains unascertained to what degree of northern latitude in our islands this general power of endurance extends. Experiment, and experiment only, ought to be relied upon; for we know that the larch was once kept in a greenhouse; and within these few years, such South American plants as *Tropaeolum pentaphyllum* and *Gesnera Douglasii* have been found to survive our winters in our garden-bor-

ders; the first in Scotland and Suffolk, and the second in Herefordshire. Many tropical plants, of every order and species, have been found to succeed with much less heat during the day, but more especially during the night, than gardeners of a previous century believed. Other plants than those already noticed have passed from the tropics to our parterres, and even to those of higher northern latitudes. The horse chesnut is a native of the tropics; but it endures uninjured the stern climate of Sweden. *Aucuba Japonica* and *Paeonia Moutan* we all remember to have passed from our stoves to the greenhouse; and now they are in our open gardens. Every year renders us acquainted with instances of plants being acclimatized; and, in addition to those already noticed, we find that Mr. Buchan, Lord Bagot's gardener, at Blithfield House, in Staffordshire, has an old cinnamon-tree (*Cinnamomum Cassia*) under his care which ripens seed. From these many plants have been raised that endure our winters in a conservatory without any artificial heat. Then, again, there is no doubt that all the conifers of Mexico, which flourish there at an elevation of more than 8,000 feet above the sea's level, will survive our winters in the open air. Among these are *Pinus Llaveana*, *P. Tecote*, *P. patula*, *P. Hartwegii*, *Cupressus thurifera*, *Juniiperus flaccida*, and some others. We have kept *Plumbago Larperntae* in an open border at Winchester during the severe winter of 1849-50; and we now know that it is quite hardy. In this instance—and the course should be pursued in all other cases—we selected a light soil, thoroughly well drained; and we began early to introduce the plant to our climate by bedding it out in May. As to all plants of shrubby or tree character, there can be little doubt that a proper solidification of the wood—by gardeners termed *ripening*—is the true basis of acclimatization. The way to effect this is by encouraging a somewhat early and free growth, and an early and decided rest. Light, shallow soils, thoroughly drained, necessarily accomplish this, by promoting an earlier root-action, and by exposing the roots more to the influences of the atmosphere, whereby the very droughts of summer become beneficial, by checking luxuriance, and bringing on the resting period betimes. In annual plants, it

must be confessed that scarcely so much progress has been made as in those of a woody character. It is not quite plain that our kidney-beans, cucumbers, capsicums, tomatoes, &c., are any harder than they were a century ago. Such facts, however, should by no means deter those who possess opportunities from trying every new plant as above suggested.

A'cer. The Maple. (*Acer*, hard, or sharp; because the wood was used for lances. Nat. ord., *Maples* [*Aceraceæ*]. Linn., 23-Polygamia 1-Monœcia.)

Nearly all hardy deciduous trees and shrubs with trivial flowers. Propagated by seeds sown as soon as ripe; layers in autumn, and grafting or budding on the common maple. Cuttings will strike in open ground if inserted in spring or autumn. Sandy loam.

- A. Austriacum* (Austrian maple). 40. Green. May. Austria.
- *barbatum* (bearded-calyxed). 15. Green and yellow. April. N. Amer. 1812. Timber.
- *campestre* (common). 25. Green and yellow. May. Britain.
- *Austriacum*. 30. Green and yellow. June. Austria. 1812.
- *colinum* (hill-dwelling). 25. Green and yellow. April. France.
- *hebecarpum* (downy-fruited). 25. Green and yellow. June. Britain.
- *lœvigatum* (smooth-leaved). 30. Green and yellow. June.
- *nanum* (dwarf). 6. Green and yellow. June.
- *variegatum* (variegated). 25. Green and yellow. May. Britain. Must be grafted or budded.
- *circinatum* (round-leaved). 30. Green and yellow. April. Columbia. 1827.
- *Creticum* (Cretan). 6. May. Levant. 1752.
- *dasyacarpum* (hairy-fruited). Green and yellow. April. N. Amer. 1725. Timber.
- *heterophyllum* (various-leaved). Green and yellow. May. Levant. 1759. Evergreen.
- *Ibericum* (Georgian). 40. Green. Asiatic. Georgia. Yellow. 1826.
- *lobatum* (lobed-leaved). 20. Green. Siberia. 1820.
- *macrophyllum* (long-leaved). 25. Green. May. N. Amer. 1812.
- *montanum* (mountain). 25. Green and yellow. N. Amer. 1750.
- *Monspessulanum* (Montpellier). 8. Green and yellow. May. France. 1739.
- *nigrum* (black). 40. Green and yellow. April. N. Amer. 1812. Timber.
- *oblongum* (oblong-leaved). 20. Green and white. Nepal. 1824.
- *obtusatum* (blunt-lobed-leaved). 40. Green and yellow. May. Hungary. 1825. This is the *Neapolitanum* of the Italians, and the *hybridum* of London nurseries.
- *obtusifolium* (blunt-leaved). 4. Green and yellow. May. Crete.
- *opalifolium* (Guelder-rose-leaved). 20. Green and yellow. May. France. 1823.
- *opalus* (opalus). 50. Green and yellow. May. Italy. 1752.
- *palmatum* (palmate-leaved). 10. Green. Japan. 1820.

A. Pennsylvanicum (Pennsylvanian or striped bark). 20. Green and yellow. May. N. Amer. 1755. A variety of this, *striatum*, must be increased by grafting or budding.

- *platanoi-des* (plane-like). 50. Green and yellow. June. Europe. 1683. Timber.
- *laciniatum* (cut-leaved). 30. Green and yellow. June. Europe. 1683. Must be grafted or budded. Timber.
- *Lobelli* (Lobels). 50. Green and yellow. May. Naples.
- *variegatum* (variegated). 30. Green and yellow. June. Europe. 1683. Must be grafted or budded.
- *pseudoplatanus* (the sycamore). 50. Green and yellow. April. Britain. Timber.
- *purpureum* (purple-leaved). Purple. May. 1828.
- *subobtusum* (slightly blunt-leaved). 50. Green and yellow. May.
- *variegatum* (variegated S.). 50. Green and yellow. April. Britain. Must be grafted or budded.
- *rubrum* (red-flowered or swamp-maple). There are two varieties, one with leaves variegated with white, and the other with yellow. 20. Red. April. N. Amer. 1656.
- *saccharinum* (sugar-maple). 40. Yellow. April. N. Amer. 1735. Timber. Sugar is made from its sap.
- *Tartaricum* (Tartarian). 20. Green and yellow. May. Tartary. 1759. Timber.

ACETARIOUS PLANTS. Salading.

ACHILLE'A. Milfoil. (*Achilles*, pupil of Chiron, first used it in medicine. Nat. ord., *Composites* [*Asteraceæ*]. Linn., 19-Syngenesia 2-Superflua.)

All hardy herbaceous plants, except *A. Ægyptiaca*, which is a greenhouse evergreen shrub. This is propagated by cuttings, and the others by root division, cuttings, and seed. Common soil.

- A. abrotanifolia* (southernwood-leaved). 2. Yellow. July. Levant. 1739.
- *acuminata* (taper-pointed). 2. White. August. 1830.
- *Ægyptiaca* (Egyptian). 1. Pale yellow. August. Levant. 1640.
- *ageratum* (sweet maudlin). 3. Yellow. September. South of Europe. 1570.
- *albida* (whitish). 1. Pale yellow. July. 1819.
- *Alpina* (Alpine). 6 inches. White. September. Siberia. 1731.
- *asplenifolia* (asplenium-leaved). 1½. Pink. July. N. Amer. 1803.
- *atrata* (black-cupped). White. August. Austria. 1596.
- *au'rea* (golden-flowered). 1. Yellow. July. Levant. 1739.
- *auriculata* (eared). 1. Yellow. July. Asia Minor. 1827.
- *chamamelifolia* (chamomile-leaved). 9 inches. White. July. France. 1825.
- *coarctata* (compressed). 4. Yellow. August. South of Europe. 1816.
- *compacta* (compact). 1. Pale yellow. July. 1803.
- *Cretica* (Cretan). 1. White. July. Candia. 1739.
- *cristata* (crested-leaved). 6 inches. White. July. Italy. 1784.
- *decolorans* (staining). 1. White, yellow. July. 1798.
- *decumbens* (decumbent). 6 inches. Yellow. July. Kamtschatka. 1816.

- A. Eupatorium* (fern-leaved). 4. Yellow. July. Caspian shore. 1893. One of the best, continuing long in flower.
- *falca'ta* (sickle-leaved). 6 inches. Pale yellow. July. Levant. 1739.
- *glomerata* (spherical). 1. Yellow. July. Caucasus. 1818.
- *grandiflora* (large-flowered). 1. White. July. Caucasus. 1818.
- *holosericea* (velvety). 1½. White. August. Parnassus. 1817.
- *impatiens* (impatient). 2. White. August. Siberia. 1759.
- *lana'ta* (woolly). 1. White. July. 1804.
- *leptophylla* (slender-leaved). Pale yellow. July. Tauria. 1816.
- *macrophylla* (long-leaved). 3. White. July. Italy. 1710.
- *millefolium* (milfoil). 2. White. August. Gardens. Found sometimes with reddish flowers.
- *Mongolica* (Mongolian). 1½. White. July. Siberia. 1818.
- *moscha'ta* (musky). 2. White. June. Italy. 1775.
- *myriophylla* (myriad-leaved). 1½. White. August. 1798.
- *na'na* (dwarf). 6 inches. White. July. Italy. 1759.
- *no'bilis* (noble). 2. White. Germany. 1640.
- *ochroleuca* (yellowish-white). 1½. Pale yellow. August. 1804.
- *odora'ta* (sweet-scented). 6 inches. White. July. Spain. 1729.
- *pectinata* (comb-leaved). 1½. Pale yellow. August. Hungary. 1801. Thought by some to be the same as *ochroleuca*.
- *ptarmica floreple'no* (double-blossomed sneezewort). 1. White. August.
- *pube'scens* (hairy). 1. Light yellow. August. Levant. 1739.
- *puncta'ta* (dotted). 1. Straw. July. Naples. 1820.
- *recurvifolia* (recurve-leaved). 1½. White. July. Pyrenees. 1820.
- *santoli'na* (lavender-cotton). 1. Pale yellow. July. Levant. 1759.
- *santolinoides* (lavender-cotton-like). 1. White. July. Spain.
- *setacea* (bristly). 1. White. July. Hungary. 1805.
- *speciosa* (showy). 1½. White. August. 1804.
- *squarro'sa* (rough-headed). 1. White. July. 1755.
- *tenuifolia* (thin-leaved). 1. Yellow. July. Switzerland. 1658.
- *Taurica* (Taurian). 1. Pale yellow. July. Tauria. 1818.
- *tomentosa* (downy). 2. Yellow. July. Britain.
- *vermicularis* (worm-like). 1½. Yellow. August. Russia. 1835.

ACHIME'NES. (From *cheimaino*, to suffer from cold, and a prefixed as an augmentative; alluding to the tenderness of the genus. Nat. ord., *Gesnerworts* [Gesneraceæ]. Linn., 14-*Didymia* 2-*Angiospermia*.)

These are all beautiful, and are stove herbaceous perennials, unless otherwise distinguished in the following list. When done flowering, and the tops die down, allow the tubers to remain in the pots, laid on their sides, where frost and wet cannot reach them, until the latter part of January; then begin to place in a gentle heat;

water them, and continue to introduce some every month, down to the end of May, for successional blooming. When the small scaly tubers have made shoots about two inches, plant six of them in a 6-inch pot, in equal parts loam and leaf-mould, with a little silver sand, thoroughly drained. They will also grow in shallow pans, or in baskets stuffed with moss, and the soil within. If suspended, they look like a ball of flowers. The temperature of an early vinery is well adapted for these plants until the end of May, at which period they should be taken to a cool pit, where a steady, moist heat can be maintained. Shade in hot days. Place the pots upon others, inverted, and keep the bottom of the pit moist, closing up early in the afternoon, and giving air, in clear weather,—about eight in the morning. This beautiful genus is becoming overloaded with varieties.

- A. argyrostigma* (silver-spotted). White and rose. This is a hardy herbaceous plant. June. Grenada. Not worth growing.
- *atrosanguinea* (dark crimson). 1½. Crimson. August.
- *ca'ndida* (white). 1½. July. White. Guatemala. 1848.
- *coccinea* (scarlet). Scarlet. August. Jamaica. 1778. A variety, *A. C. major*, is good.
- *cuprea'ta* (coppery). Scarlet. July. New Grenada. 1847.
- *Esche'rii* (Escher's). Purple, crimson. June. Gardens. 1849.
- *floribunda elegans* (many-flowered). Purple, crimson. October. Gardens. 1848.
- *formosa* (handsome). Rose. September.
- *gloxiniiflora* (gloxinia-flowered). Buff-spotted. December. Mexico. 1848.
- *grandiflora* (large-flowered). Pale crimson. This is a greenhouse herbaceous plant. October. Mexico. 1842. A variety of this, *Skinnerii*, is a stove plant. Guatemala. Shaded scarlet. 1847.
- *heterophylla* (various-leaved). Scarlet. Van Houtte. July.
- *hirsuta* (hairy). 2½. Rose. September. Guatemala. 1844.
- *intermedia* (intermediate). 1. Scarlet. August. Gardens. 1847.
- *Jay'ti* (Jay's). Violet purple. June. Gardens. 1848.
- *Jaureguia* (Jaureguia's). 1. White. Carmine eye, striped. October. Mexico. 1848.
- *Klee'i* (Klee's). ¾. August. Pink and purple. Guatemala. 1848.
- *Liepmanni* (Liepmann's). 1½. Pale crimson. July.
- *longiflora* (long-flowered). This is a greenhouse herbaceous plant. Violet. August. Guatemala. 1841. A stove variety, *A. L. major*, is good.
- *alba* (white, long-flowered). White. October. Guatemala. 1849. Same as *Jaureguia*?
- *misera* (poor-flowered). 1. White and purple. July. Guatemala. 1848.
- *Mountfordii* (Mountford's). Scarlet. August. Garden. 1847.
- *multiflora* (many-flowered). 1. Lilac. October. Brazil. 1843.
- *ocella'ta* (eye-spotted). 1½. Red. July. Panama. 1847.
- *patens* (spreading). 1. Violet. June. Mexico. 1846. A small variety of this is not worth growing.
- *pedunculata* (long-stalked). 2. Scarlet, yellow. June. Guatemala. 1840.

- A. picta* (spotted). 1½. Scarlet, yellow. June. Mexico. 1844.
 — *pyropæ'a* (flame-coloured). 1. Crimson. May. Mexico. 1848.
 — *ro'sea* (rosy). 1. Pink. June. Guatemala. 1841.
 — *Skinne'ri* (Skinner's). 2. Rose. July. 1847.
 — *Tyrianthi'na* (Tyrian blue). 1½. Violet-blue. August. Mexico. 1849.
 — *venu'sta* (charming). 1½. Purple. July. Hybrid. 1848.

ACINE'TA. (From *akineta*, immovable; the lip being jointless. Nat. ord., *Orchids* [*Orchidacæ*]. Linn., 20-*Gynandria* 1-*Monogynia*.)

Allied to *Periste'ria*. Stove orchids, cultivated in baskets lightly filled with sphagnum. The flowers grow through the bottom of the baskets.

- A. Barke'ri* (Barker's). 2. Yellow. May. Mexico. 1837.
 — *Humbo'ldtii* (Humboldt's). 2. Chocolate and crimson. May. Venezuela. 1841.

ACIO'TIS. (*Akis*, a point, and *ous*, an ear; from shape of petals. Nat. ord., *Melastomads* [*Melastomacæ*]. Linn., 10-*Decandria* 1-*Monogynia*.)

Stove evergreen plants, allied to *Osbeckia*, but may be grown in a warm pit or frame until the spring, and then put into a greenhouse. Cuttings in sand, under a bell-glass; equal parts rich loam and peat.

- A. aquat'ica* (water). 9 inches. White and red. June. S. Amer. 1793.
 — *discolo'r* (various-coloured). 1. White and red. June. Trinidad. 1816.

A'CIS. (After *Acis*, a Sicilian shepherd. Nat. ord., *Amaryllids* [*Amaryllidacæ*]. Linn., 6-*Hexandria* 1-*Monogynia*.)

All hardy bulbs, related to the Snowflake. Offsets in sandy soil.

- A. autumn'a'lis* (autumn-blooming). 3 inches. Pink. September. Portugal. 1829.
 — *grandiflo'rus* (large-flowered). 6 inches. White. August. Numidia. 1820.
 — *ro'seus* (rose-coloured). 3 inches. August. Corsica. 1820.
 — *trichophyllus* (hair-leaved). 6 inches. White. January. Spain. 1820.

ACISANTHE'RA. (*Akis*, a point; *anthera*, an anther; having pointed anthers. Nat. ord., *Loosestrifes* [*Lythracæ*]. Linn., 10-*Decandria* 1-*Monogynia*.)

An evergreen stove-shrub; allied to *Cuphea*; cultivated like *Aciotis*.

- A. quadra'ta* (square-branched). 3. Jamaica. 1804.

ACMADE'NIA. (*Acme*, a point; *aden*, a gland; the anthers having glands. Nat. ord., *Rueworts* [*Rutacæ*]. Linn., 5-*Pentandria* 1-*Monogynia*.)

Greenhouse evergreen shrub; allied to *Diosma*. Cuttings of end of branches two inches long, planted in sand, under a bell-glass; loam and turfy peat.

- A. tetrago'na* (four-angled). 2. White. June. Cape of Good Hope. 1798.

ACME'NA. (*Acmena*, a fabulous nymph.

Nat. ord., *Myrtleblooms* [*Myrtacæ*]. Linn., 12-*Icosandria* 1-*Monogynia*.)

Greenhouse evergreen shrub. Cuttings of small side-shoots, in sand, in spring; loam and peat; temperature from 35° to 40° in winter.

- A. floribu'nda* (many-flowered). 6. White. July. N. Holland. 1788.

ACONI'TUM. (Being plentiful near *Acona*. Nat. ord., *Crowfoots* [*Ranunculacæ*]. Linn., 13-*Polyandria* 3-*Tri-gynia*.)

All hardy herbaceous plants. Many are very beautiful, and will do well in plantations, even if a little shaded by the trees. Division of the roots and seeds; common garden-soil.

TUBEROUS ROOTED.

- A. acumina'tum* (acuminate). 3. Blue. July. Switzerland. 1819.
 — *acu'tum* (acute-leaved). 4. Blue. June. South of Europe. 1821.
 — *albi'dum* (whitish). 3. White. June. Europe. 1824.
 — *ame'num* (pleasing). 4. Blue. June. South of Europe.
 — *ampliflo'rum* (large-flowered). 4. Blue. June. Austria. 1823.
 — *angustifo'rium* (narrow-leaved). 4. Blue. June. Europe. 1824.
 — *Bernhardia'num* (Bernhard's). 4. Blue. June. Europe. 1824.
 — *bisflo'rum* (two-flowered). ½. Pale blue. June. Siberia. 1817.
 — *Brau'nii* (Braune's). 4. Blue. July. Switzerland. 1821.
 — *callybo'tryon* (fine-racemed). 4. Blue. June. South of Europe.
 — *Ca'mmarum* (Cammarum). 3. Purple. August. Austria. 1752.
 — *ce'rmum* (drooping). 3. Blue. July. Switzerland. 1800.
 — *flexica'ule* (zigzag-stemmed). 3. Blue. July. Switzerland. 1819.
 — *pauciflo'rum* (few-flowered). 3. Blue. July. Switzerland. 1821.
 — *ramo'sum* (branchy). 3. Blue. July.
 — *Clu'sii* (Clusius's). 3. Blue. July. Switzerland. 1819.
 — *commuta'tum* (changed, or tall dog's-bane). 3. Blue. June. South of Europe. 1823.
 — *delphinifo'rium* (larkspur-leaved). 1½. Blue. June. N. Amer. 1804.
 — *ela'tum* (tall). 4. Blue. June. Europe. 1823.
 — *e'minens* (eminent). 4. Blue. June. Europe. 1800.
 — *eriste'mon* (woolly-stamened). 4. Blue. June. Europe. 1821.
 — *eusta'chyon* (well-spiked). 4. Blue. June. Europe. 1824.
 — *exalta'tum* (exalted). 6. Blue. June. Siberia. 1819.
 — *fla'ccidum* (flaccid). 5. Blue. July. Siberia. 1822.
 — *Florke'a'num* (Flörke's). 3. Blue. July. Siberia. 1822.
 — *bi'color* (two-coloured). 3. Blue, white. June. Switzerland. 1801.
 — *formo'sum* (handsome). 4. Blue. June. South of Europe. 1824.
 — *Fu'nkii* (Funke's). 3. Blue. June. Switzerland. 1825.
 — *gale'ctonam* (lizard's-bane). Blue. June. 4. Hungary. 1822.
 — *gibbo'sum* (swollen). 4. Blue. July. Caucasus. 1818.

- 4. *Gmelini* (Gmelin's).** 4. Blue. July. Siberia. 1821.
— *gracile* (slender). 2. Blue. July. Switzerland. 1821.
— *Halleri* (Haller's). 4. Blue. June. South of Europe. 1821.
— — *bicolor* (two-coloured). 4. Blue. June. Switzerland. 1820.
— *hamatum* (hooked). 4. Pale blue. July. Italy. 1810.
— *hebegynum* (blunt-styled). 3. Purple. July. Switzerland. 1819.
— — *multifidum* (many-cleft). 3. Purple. July. Switzerland. 1819.
— *hi'ans* (gaping). 4. Blue. June. South of Europe. 1823.
— *Ho'pii* (Hoppe's). 4. Blue. June. Carinthia. 1823.
— *illinitum* (anoined). 4. Blue. July. 1821.
— *intermedium* (intermediate). 5. Blue. July. 1820.
— *innuctum* (anoined). 4. Blue. July. Europe. 1822.
— *Japonicum* (Japan). 6. Flesh. August. Japan. 1790.
— — *cæruleum* (azure). 4. Blue. July. Japan. 1700.
— *Kæle'num* (Kælle's). 4. Blue. June. South of Europe. 1820.
— — *pygmaeum* (pigmy). 2. Blue. June. South of Europe. 1822.
— *Köhle'ri* (Köhler's). 4. Blue. June. Europe. 1824.
— *lacini'sum* (jagged). 3. Blue. July. Switzerland. 1820.
— *læ'tum* (joyful). 4. Blue. June. South of Europe. 1820.
— *læ'xum* (loose). 4. Blue. June. South of Europe. 1820.
— *leuca'nthum* (white-flowered). 3. White. June. 1823.
— *maxim* (largest). 6. Blue. July. Kamtschatka. 1823.
— *melo'ctonum* (badger's-bane). 4. Blue. June. 1821.
— *Meyer'i* (Meyer's). 3. Blue. June. Switzerland. 1825.
— *molle* (soft). 5. Blue. July. 1820.
— *Napel'us* (monk's-hood). 4. Blue. June. Europe. 1596.
— — *albus* (white-flowered). 4. White. June. Switzerland. 1819.
— — *rube'llus* (small red-flowered). 4. Blue. June. Switzerland. 1819.
— *nasutum* (great-nosed). 3. Purple. July. Siberia. 1818.
— *neomontanum* (new-mountain). 3. Blue. July. Europe. 1799.
— *Neuberge'nsæ* (Neuberg). 4. Blue. June. South of Europe. 1822.
— *nitidum* (shining). 3. Blue. June. Switzerland. 1825.
— *oligocar'pum* (few-podded). 4. Blue. July. Europe. 1823.
— *Otonia'num* (Otto's). 4. Blue. June. Europe. 1824.
— *paniculat'um* (panicked). 3. Pale blue. July. France. 1815.
— *plicat'um* (plaited). 3. Blue. June. Switzerland. 1825.
— *prodr'ctum* (long-lipped). 1. Blue. July. Siberia. 1821.
— — *pubescens* (pubescent). 4. Blue. June. Europe. 1824.
— *reco'gnitum* (recognised). 4. Blue. June. 1824.
- A. rhyncha'nthum* (bill-flowered).** 4. Purplish-blue. July. Switzerland. 1821.
— — *bicolor* (two-coloured). 4. Whitish-blue. July. Switzerland. 1819.
— *rigidum* (rigid). 3. Blue. June. Switzerland. 1825.
— — *grandiflorum* (large-flowered). 3. Blue. June. 1826.
— *rostrat'um* (beaked). 3. Blue. July. Switzerland. 1810.
— — *pilosiusculum* (rather hairy). 3. Purple. July. Carpathian mountains. 1800.
— *Schleiche'ri* (Schleicher's). 2. Blue. June. Switzerland. 1821.
— *semigaleat'um* (half-helmeted). 1. Blue. July. Siberia. 1818.
— *speciosum* (showy). 3. Blue. July. 1823.
— *Sprenge'lii* (Sprenge's). 4. Blue. June. Europe. 1824.
— *squarro'sum* (squarrose). 4. Blue. August. Siberia. 1822.
— *strictum* (upright). 4. Blue. June. Siberia. 1824.
— *Tauricum* (Taurian). 4. Blue. June. Tauria. 1752.
— *tortuosum* (twisting). 6. Purplish-blue. June. 1812.
— *toxicum* (poisonous). 3. Blue. June. Switzerland. 1825.
— *umbros'um* (shady). 3. Blue. July. Switzerland. 1825.
— *uncinat'um* (hooked). 2. Blue. July. N. Amer. 1768.
— — *Michauxianum* (Michaux's). 2. Blue. July. N. Amer. 1800.
— *variegat'um* (variegated). 5. Purplish-white. July. South of Europe. 1597.
— — *albiflorum* (white-flowered). 4. White. July. Switzerland. 1819.
— — *bicolor* (two-coloured). 4. Whitish-blue. July. Switzerland. 1821.
— — *cæruleum* (blue). 4. Blue. July. Switzerland. 1819.
— *venisum* (beautiful). 3. Blue. June. Switzerland. 1823.
— *virgat'um* (twiggy). 4. Blue. June. South of Europe. 1822.
— *volut'ile* (twining). 6. Blue. July. Siberia. 1799.
— *Willdenov'ii* (Willdenow's). 3. Blue. June. Europe. 1823.
— *zootonum* (poisonous). 3. Blue. June. Switzerland. 1825.
- FIBROUS ROOTED.
- A. album* (white).** 4. White. July. Levant. 1752.
— *Anthora* (Anthora). 1½. Pale yellow. July. Pyrenees. 1596.
— *Anthoroid'um* (Anthora-like). 1½. Pale yellow. July. Jura. 1821.
— *austra'le* (southern). 2½. Purple. July. Denmark. 1821.
— *autumna'le* (autumnal). 1½. Lilac, white. November. N. Ch ina. 1846.
— *barbat'um* (bearded). 2. Pale yellow. June. Siberia. 1807.
— *Carpaticum* (Carpathian). 2½. Purple. July. Carpathian mountains. 1810.
— *Chine'se* (Chinese). 4. Blue. September. China. 1833.
— *cyno'ctonum* (tall dog's-bane). 3. Pale yellow. July. France. 1820.
— *Decandol'lii* (Decandolle's). 1½. Pale yellow. July. Siberia. 1823.
— *deco'rum* (neat). 4. Blue. June. Pyrenees. 1824.
— *eulophum* (well-crested). 1½. Pale yellow. June. Caucasus. 1821.

- A. grandiflorum* (large-flowered). 1½. Pale yellow. July. Jura. 1821.
 — *hispidum* (rough-haired). 2. Pale yellow. June. Siberia. 1823.
 — *Jacquinii* (Jacquin's). 1½. Pale yellow. June. Austria. 1800.
 — *Lamarckii* (Lamarck's). 2. Pale yellow. July. Pyrenees. 1817.
 — *lasiflorum* (loose-flowered). 3. Pale yellow. July. Switzerland. 1823.
 — *lupicidum* (wolf's-bane). 2. Pale yellow. July. Europe. 1821.
 — *lycoctonum* (wolf's-bane). 3. Purple. July. Alps. Europe. 1596.
 — *macrophyllum* (large-leaved). 2. Pale yellow. July.
 — *Moldavicum* (Moldavian). 5. Purplish. August. Moldavia. 1830.
 — *nemorosum* (grove). 2. Pale yellow. July. Caucasus. 1823.
 — *Nuttallii* (Nuttall's). 5. Pale blue. August. N. Amer. 1829.
 — *ochranthum* (pale-flowered). 4. Yellow. August. Russia. 1834.
 — *ochroleucum* (yellowish-white). 3. Light yellow. July. Caucasus. 1794.
 — *ovatum* (ovate-leaved). 2½. Purple, green. June. Cashmere. 1839.
 — *Pallasii* (Pallas's). 2. Pale yellow. July. Siberia. 1821.
 — *Pyrenaicum* (Pyrenean). 4. Yellow. June. Pyrenees. 1789.
 — *rectum* (upright). 3. Pale yellow. July. Europe. 1824.
 — *rubicundum* (reddish). 2½. Purple. July. Siberia. 1819.
 — *septentrionale* (northern). 4. Blue. July. North of Europe. 1800.
 — *Stoerckianum* (Stoerck's). 4. Blue. August. Austria. 1824.
 — *theriophonum* (beast's-bane). 2½. Pale yellow. June. Europe. 1824.
 — *tragocitonum* (goat's-bane). 2½. Pale yellow. July. Switzerland. 1822.
 — *versicolor* (various-coloured). Blue and white. August. Siberia. 1820. About the best.
 — *vulparia* (fox-bane). 3. Pale yellow. July. Alps. Europe. 1821.

A'CORUS. (From *a*, privative, and *kore*, the pupil of the eye; referring to its medical qualities. Nat. ord., *Orontiadæ* [*Orontiacæ*]. Linn., 6-*Hexandria* 1-*Monogynia*.)

A small genus of herbaceous plants, having sword-like leaves. *A. calamus* is a useful medicinal plant—a native of our marshes; but now used chiefly by perfumers for the fragrance of its roots. Hardy marsh perennials.

- A. calamus* (sweet-flag). 2. June. Britain.
 — *gramineus* (grass-leaved). ½. February. China. 1796.
 — *terrestris* (land). 1. June. China. 1822.

ACRE is the usual land-measure in Great Britain. The Statute Acre throughout the United Kingdom now contains 4 square *roods*; a rood contains 160 square *perches*, *roods*, *poles*, or *hugs*; and a perch contains 30½ square *yards*. A Statute Acre, therefore, contains 4840 square *yards*. The *Irish Acre* contains 7840 square *yards*, or nearly equal to 1 acre, 2

roods, and 19 *perches*, Statute measure. The *Scotch Acre* contains 5760 square *yards*, equal to 1 acre, 1 rood, and 2 *perches*, Statute measure.

ACRIO'PSIS. (From *akros*, top, and *opsis*, eye. Nat. ord., *Orchids* [*Orchidacæ*]. Linn., 20-*Gynandria* 1-*Monogynia*.)

A small genus of pretty stove orchids.

- A. densiflora* (crowded-flowered). Green and pink. Borneo. 1846.
 — *picta* (painted). White, green, and purple. August. Bantam. 1842.

ACROCO'MIA. (From *akros*, top, and *kome*, a tuft; referring to the way the leaves are produced. Nat. ord., *Palms* [*Palmacæ*]. Linn., 21-*Monæcia* 6-*Hexandria*.)

A genus of South American Palms; a race of plants including some of the most majestic specimens of the vegetable kingdom, whose products of fruit, root, stems, and leaves are applied to numerous economical purposes. Suckers; rich sandy loam.

- A. aculeata* (prickly). 40. West. Indies. 1795.
 — *fusiformis* (spindle-shaped). 40. Trinidad. 1731.
 — *globosa* (globular). 20. St. Vincent. 1824.
 — *Guianensis* (Guiana). 30. Demerara. 1824.
 — *horrida* (horrid). 30. Trinidad. 1820.
 — *minor* (smaller). 20. Trinidad. 1820.
 — *sclerocarpa* (hard-fruited). 40. W. Ind. 1731.

A. tenuifolia (fine-leaved). 30. Brazil. 1824.
ACRONY'CHIA. (From *akros*, top, and *onyx*, a claw; referring to the curved points of the petals. Nat. ord., *Citron-worts* [*Aurantiacæ*]. Linn., 8-*Octandria* 1-*Monogynia*.)

A fine greenhouse evergreen tree, producing sweet-scented blossoms, not unlike those of the orange. Cuttings of small side-shoots in July, in sand, under a bell glass; soil, sandy loam and peat. Winter temp., 40° to 45°.

- A. Cunninghamii* (Cunningham's). White. July. Moreton Bay. 1838.

ACROPE'RA. (From *akros*, the end, and *pera*, a pouch; referring to a pouch-like appendage at the end of the labelum. Nat. ord., *Orchids* [*Orchidacæ*]. Linn., 20-*Gynandria* 1-*Monogynia*.)

A pretty stove orchid.

- A. Loddigessii* (Loddige's). ½. Yellow and spotted. August. Mexico. 1838.

ACROPHY'LLUM. (From *akros*, top, and *phylon*, a leaf; referring to the way in which the leaves are produced at the summit of the branches above the flowers. Nat. ord., *Cunoniads* [*Cunoniacæ*]. Linn., 10-*Decandria* 1-*Monogynia*.)

Greenhouse evergreen shrub. Cuttings of half-ripe shoots in July; soil, sandy peat and loam.

- A. verticillatum* (whorled). 6. Pink and white. May. N. Holland. 1835.

ACRO'PTERIS. (From *akros*, a point, and *pterus*, a fern. Nat. ord., *Ferns*. Linn., 24-*Cryptogamia* 1-*Filices*.)

Allied to *Asplenium*, the Spleenwort. All Ferns are now in the Nat. ord. *Polypodiaceæ*. Stove Ferns, propagated by division; soil, light loam and peat. See *ASPLENIUM*.

- A. australis* (southern). Brown. N. Holland.
- *Canarie'nsis* (Canary). Brown. Canaries. 1824.
- *cauda'ta* (tailed). Brown. I. of Luzon. 1824.
- *fulca'ta* (sickle-like). I. Brown. India. 1843.
- *laserpitio'lia* (laserpitium-leaved). Brown, I. of Luzon. 1843.
- *oxyphy'lia* (sharp-leaved). Brown, yellow. I. of Luzon. 1843.
- *pellu'cida* (clear). Brown. I. of Luzon. 1843.
- *platyphy'lia* (flat-leaved). Brown, yellow. Malacca. 1843.
- *præmo'rsum* (bitten-leaved). ♂. Brown. Jamaica. 1793.
- *radia'ta* (rayed). Brown. N. Amer. 1793.
- *ru'ta mura'lia* (wall-rue). ♂. Brown. Britain. 1793.
- *se'rra* (saw-leaved). Brown. North of Europe. 1844.
- *septentriona'le* (northern). ♂. Brown. Britain. 1844.
- *spathuli'na* (spatulate). I. of Luzon. 1844.
- *va'rians* (varying). I. of Luzon. 1844.

ACRO'STICHUM. (From *akros*, top, and *stichos*, order; in reference to the lines on the back of the leaves; but the application is not very obvious. Linn., 24-*Cryptogamia* 1-*Filices*. Nat. ord., *Ferns*—*Polypodiaceæ*.)

Nearly all stove Ferns. Seed and root division; loam and peat, equal parts. Winter temp. not below 50°.

- A. alcico'rne* (elk's-horn). 1. September. N. S. Wales. 1808.
- *appendicatum* (appendaged). 2. W. Ind. 1824.
- *asplenifo'lium* (asplenium-leaved). 1. Brown, yellow. July. Brazil. 1833.
- *au'reum* (golden). 4. August. W. Ind. 1815.
- *citrifo'lium* (orange-leaved). ♂. Yellow, brown. September. W. Ind.
- *crini'tum* (hairy). 1. July. W. Ind. 1793.
- *flagelli'ferum* (rod-shaped). 2. E. Ind. 1828.
- *fimbria'tum* (fringed). Brazil. 1824.
- *fusifo'rme* (spindle-formed). 1. Brown, yellow. July. Malacca.
- *glandulo'sum* (glandulous). 1. Jamaica. 1825.
- *grande* (magnificent). 6. Moreton Bay. 1828.
- *juglandifo'lium* (walnut-leaved). 2. Yellow, brown. August. Surinam. 1832.
- *latifo'lium* (broad-leaved). 1. Yellow, blue. Jamaica.
- *longifo'lium* (long-leaved). 1. August. Jamaica. 1817.
- *nicotianifo'lium* (tobacco-leaved). 2. Brown. October. W. Ind.
- *pilosello'ides* (mouse-ear-leaved). 2. Brown, yellow. July. E. Ind. 1822.
- *scolope'ndrium* (scelopendrum-like). 2. Brown. August. E. Ind.
- *simplex* (simple-leaved). 1. Jamaica. 1793.
- *Stemaria* (*Stemaria*). 1. July. Guinea. 1823.
- *subdia'phana* (semi-transparent). Brown. India.

ACRO'TRICHE. (From *akros*, top, and

thrix, hair; referring to the hairs on the sepals. Nat. ord., *Epacrids* [*Epacridaceæ*]. Linn., 6-*Hexandria* 1-*Monogynia*.)

Greenhouse evergreen shrubs. Cuttings in sandy peat, under a bell-glass, in cold frame. Temp., 40° to 45°.

- A. corda'ta* (heart-leaved). ♂. White. June. N. Holland. 1823.
- *divarica'ta* (straggling). ♂. White. May. N. Holland. 1824.
- *ovalifo'lia* (oval-leaved). ♂. White. May. N. Holland. 1823.

ACTÆ'A. (From *aktaia*, the elm; referring to the leaves. Nat. ord., *Crowfoots* [*Ranunculaceæ*]. Linn., 13-*Polyandria* 1-*Monogynia*.)

Hardy herbaceous perennials of little beauty. Propagated by dividing roots.

- A. spica'ta* (spiked or bane-berry). 3. White. May. Britain.

ACTINOCA'RPUS. (From *aktin*, a ray, and *carpos*, fruit; referring to its radiated appearance. Nat. ord., *Alismads* [*Alismaceæ*]. Linn., 6-*Hexandria* 4-*Petragynia*.)

Aquatics. *A. minor* grows in sandy peat immersed in water; seeds sown in sandy peat; temp., 40° to 50°.

- A. Damaso'nium* (*Damasonium*). ♂. White. July. England.
- *mi'nor* (smaller). ♂. White. June. N. S. Wales.

ACTINO'MERIS. (From *aktin*, a ray, and *meris*, part; referring to the radiated aspect of the plants. Nat. ord., *Composites* [*Asteraceæ*]. Linn., 19-*Syngenesia* 3-*Polygamia frustranea*.)

Ornamental hardy plants, allied to *Coreopsis*, and of easy culture. Propagated by dividing roots.

- A. ala'ta* (wing-stalked). 3. Yellow. July. S. Amer. 1803.
- *heliantho'ides* (sunflower-like). 3. Yellow. S. Amer. 1825.
- *proce'ra* (tall). 8. Yellow. September. N. Amer. 1766.
- *squarro'sa* (squarrose). 3. Yellow. July. N. Amer. 1640.

ACTINO'TUS. (From *actinotos*, meaning radiated, on account of the form of the involucre. Nat. ord., *Umbellifers* [*Umbelliferae*]. Linn., 5-*Pentandria* 1-*Monogynia*.)

Greenhouse herbaceous perennials. Root division; loam and peat. Winter temp., 40° to 45°.

- A. helia'nthi* (sunflower). 2. White. June. N. Holland. 1821.
- *leucoce'phalus* (white-headed). Swan River. 1837.

ACU'MINATED. Having a long, slender point.

A'CYNOS. (A Greek word of no obvious meaning, applied to balsamic plants.

Nat. ord., *Labiates* [*Lamiaceæ*]. Linn., 14-*Didynamia* 1-*Gymnospermia*.)

These thyme-like plants are all hardy. Increased either by seeds or division of roots.

ANNUALS.

- A. heterophyllus* (variable-leaved). $\frac{1}{2}$. Purple. June. Italy. 1822.
— *suaevolens* (sweet-scented). 1. Red. July. Greece. 1817.
— *vulgaris* (*Basil*-leaved, common). Violet. July. Britain.
— *villosus* (villous). $\frac{1}{2}$. Red. July. Germany. 1817.

BIENNIALS.

- A. Alpinus* (Alpine). $\frac{1}{2}$. Purple. August. Austria. 1731.
— *grandiflorus* (great-flowered). $\frac{1}{2}$. Purple. July. 1810.
— *Patavicus* (Paduan). $\frac{3}{4}$. Flesh. July. S. Europe. 1776.
— *purpurea* (purplish). $\frac{1}{2}$. Purple. June. Spain. 1820.

EVERGREEN SHRUBS.

- A. graveolens* (strong-scented). 1. Purple. July. Crimea. 1820.
— *herba-baroni* (herb-baroni). 1. Purple. July. Corsica. 1820.
— *rotundifolius* (round-leaved). $\frac{1}{2}$. Purple. June. Spain. 1820.

ADAM'S NEEDLE. See YUCCA.

ADA'MIA. (In honour of John Adam, M.D., of Calcutta. Nat. ord., *Saxifragæ* [*Saxifragaceæ*]. Linn., 14-*Didynamia* 1-*Angiospermia*.)

Greenhouse evergreen shrubs. Peat and loam; cuttings in sand, under a bell-glass.

- A. cya'nea* (blue-berried). 4. Pink. Nepal. 1829.
— *sylva'tica* (wood). Blue. June. India. 1846.
— *versicolor* (many-coloured). Blue. August. China. 1844.

ADANSO'NIA. The Baobab. A single African tree comprehends this genus. It is the largest tree in the world.

ADDER'S-TONGUE. A Fern. *Ophioglossum*.

ADE'LIA. (From *a*, not, and *delos*, visible, in reference to the minute parts of fructification. Nat. ord., *Spurge-worts* [*Euphorbiaceæ*]. Linn., 22-*Diacia* 12-*Monadelphia*.)

Stove evergreen shrubs. Peat and loam; cuttings in sandy loam, after their cut end is dry.

- A. acido'ton* (spiry). 3. Greenish-white. June. Jamaica. 1768.
— *Berna'dia* (Bernard de Jussieu's). 6. Green. July. Jamaica. 1768.
— *ricine'lla* (ricinus-like). 6. Greenish-white. July. Jamaica. 1768.

ADE'NDRA. (From *aden*, a gland, and *aner*, the stamen or male organ; referring to the aspect of the anthers. Nat. ord., *Rue-worts* [*Rutaceæ*]. Linn., 5-*Pentandria* 1-*Monogynia*. This genus was formerly included in *Diosma*.)

Greenhouse evergreen shrubs. Sandy peat, with a little turfy loam; cuttings from the young

branches in sand, under a bell-glass, and left in a cold frame. Winter temp., 40° to 45°.

- A. acuminata* (acuminate). 2. White. June. Cape of Good Hope. 1812.
— *ama'na* (pleasing). 2. Red. June. Cape of Good Hope. 1798.
— *cori'cea* (leathery-leaved). 2. Pink. June. Cape of Good Hope. 1720.
— *fra'grams* (fragrant). 3. Pink. June. Cape of Good Hope. 1812.
— *linea'ria* (linear-leaved). 1. White. June. Cape of Good Hope. 1800.
— *marginata* (margined). 2. Pink. June. Cape of Good Hope. 1806.
— *specio'sa* (showy). 2. Pink. June. Cape of Good Hope. 1789.
— — *multiflora* (many-flowered, showy). 2. Pink. June. Cape of Good Hope. 1790.
— *specio'sa pauciflora* (few-flowered, showy). 2. Pink. June. Cape of Good Hope. 1790.
— *umbellata* (umbel-flowered). 2. Pink. June. Cape of Good Hope. 1790.
— *uniflora* (one-flowered). 1. Pink. June. Cape of Good Hope. 1775.
— *villo'sa* (shaggy). 2. Pink. June. Cape of Good Hope. 1786.

ADENANTHE'RA. (From *aden*, a gland, and *anthera*, an anther; referring to the gland on each anther. Linn., 10-*Decandria* 1-*Monogynia*. Nat. ord., *Leguminous Plants* [*Fabaceæ*], and allied to *Mimosa*.)

Stove evergreen trees. Loam and peat; cuttings.

- A. falcata* (sickle-shaped). 5. Yellow. E. Ind. 1812.
— *pavoni'na* (peacock-like). 5. Yellow, white. July. E. Ind. 1759.

ADENA'NTHOS. (From *aden*, a gland, and *anthos*, a flower; referring to the glands on the flowers. Nat. ord., *Proteads* [*Proteaceæ*]. Linn., 4-*Tetrandria* 1-*Monogynia*.)

Greenhouse evergreen shrubs. Sandy peat cuttings in spring, under a glass, in sand; soil, peat and loam. Winter temp., 40° to 45°.

- A. barbigera* (bearded). Swan River.
— *cuneata* (wedge-leaved). 5. Red. July. N. Holland. 1824.
— *obovata* (obovate-leaved). 5. Red. July. N. Holland. 1826.
— *sericea* (silky). 5. Red. N. Holland. 1824.
— *terminalis* (terminal-flowered). Swan River.

ADE'NIUM. (From *Aden*, where it is native. Nat. ord., *Dogbanes* [*Apocynaceæ*]. Linn., 5-*Pentandria* 1-*Monogynia*.)

Greenhouse shrub, allied to *Alstonia*. It is propagated from cuttings of the young shoots in sand, under a glass, with bottom-heat, in spring. Soil, sandy loam and peat, in equal proportions.

- A. hou'ghel* (houghel-bush, native name). 3. June. Pinky-crimson. Aden. 1846.

ADENOCALY'MNA. (From *aden*, a gland, and *calymna*, a covering; referring to the conspicuous glands on the leaves and floral coverings. Nat. ord., *Bignoniads* [*Bignoniaceæ*]. Linn., 14-*Didynamia* 2-*Angiospermia*.)

A genus allied to *Spathodes*. Stove evergreen twiner. Loam and peat; cuttings in sand, under a bell-glass, and bottom-heat.

A. comosum (hairy). 20. October. Yellow. Brazil. 1841.

ADENOCAEPUS. (From *aden*, a gland, and *carpos*, fruit; referring to the glands on the fruit. Nat. ord., *Mimosads* [Fabaceæ]. Linn., 16-*Monadelphia* 6-*Decandria*. Allied to *Cytisus*.)

This genus is chiefly made up of old species of *Cytisus*, brooms, and allied plants. All are yellow-flowered. The first two greenhouse plants, others hardy; sandy loam, but with a little peat for the first two. Seeds sown in March, and cuttings any time in spring and summer.

A. foliolosus (slightly-leaved). 6. May. Canaries. 1629.

— *frankenioides* (frankenian-like). 2. June. Canaries. 1815. These two are evergreen, and require protection from frost.

— *Hispalnicus* (Spanish). 3. June. Spain. 1816.

— *intermedius* (intermediate). 4. June. Sicily.

— *parvifolius* (small-leaved). 4. June. South of France. 1890.

— *Toloneensis* (Toulon). 3. June. South of France. 1890.

ADENO'PHORA. (From *aden*, a gland, and *phoreo*, to bear. Nat. ord., *Bellworts* [Campanulaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*.)

Hardy herbaceous plants, like *Campanula*. Common soil. Seeds. All bear blue or bluish flowers.

A. communis (common Siberian). 4. July. Siberia. 1810.

— *hybrida* (C. S. hybrid). 2. June. Siberia. 1816.

— *suaveolens* (sweet-scented C. S.). 2. June. Siberia. 1816.

— *coronopifolia* (buckthorn-leaved). 1. June. Dahuria. 1822.

— *denticulata* (finely-toothed). 1. July. Siberia. 1817.

— *Fischeri* (Fischer's). 2. August. Siberia. 1819.

— *Gmelini* (Gmelin's). 2. June. Siberia. 1820.

— *intermedia* (intermediate). 2. August. Siberia. 1819.

— *Lamarckiana* (Lamarck's). 2. July. Siberia. 1820.

— *marcupifora* (purse-flowered). 2. July. 1818.

— *pereskiafolia* (pereskia-leaved). 2. June. Siberia. 1821.

— *periplocifolia* (periploca-leaved). 1. August. Siberia. 1824.

— *Rabelaisiana* (Rabelais's). 2. August. Siberia. 1823.

— *reticulata* (netted). 2. July. Siberia. 1820.

— *stylosa* (long-styled). 2. May. Siberia. 1820.

— *verticillata* (whorl-leaved). 2. June. Siberia. 1783.

ADENO'STOMA. (From *aden*, a gland, and *stoma*, a pore. Nat. ord., *Sanguisorbs* [Sanguisorbaceæ]. Linn., 3-*Triandria* 1-*Monogynia*.) Hardy shrub, allied to *Lady's Mantle* (*Alchemilla*).

Propagated by cuttings of the young shoots in spring, under a glass, in sand. Soil, rich loam and peat, in equal proportions.

A. fusciculata (fascicled). 3. White. California. 1848.

ADENOTRI'CHIA (From *aden*, a gland, and *thrix*, hair; having hairs with glands. Nat. ord., *Composites* [Asteraceæ]. Linn., 16-*Syngenesia* 2-*Superflua*. Allied to *Groundsel*.)

Half-hardy herbaceous plant. Propagated from seeds sown in the spring in a gentle hotbed. Planted out in summer. Soil, light rich loam.

A. amplexicaulis (stem-clasping). 2. May. Yellow. Chili. 1826.

ADE'SMIA. (From *a*, not, or without, and *desmos*, a bond; in reference to the stamens being free. Linn., 16-*Monadelphia* 6-*Decandria*. Nat. ord., *Leguminous Plants* [Fabaceæ]. Greenhouse and half-hardy plants, allied to *Hedysarum*, all more or less of a trailing habit.)

Annuals, sown in spring in slight hotbed. Cuttings of others in summer, in sandy loam, under a glass. Winter temp., 40° to 45°.

ANNUALS.

A. muricata (point-covered). 1. Yellow. June. Patagonia. 1793.

— *papposa* (downy-podded). 1. Yellow. June. Chili. 1823.

— *pendula* (pendulous-flowered). 1. Yellow. June. Buenos Ayres. 1825.

EVERGREEN SHRUBS.

A. glutinosa (sticky). Yellow. Chili. 1831.

— *Loudonia* (Loudon's). 2. Yellow. May. Valparaiso. 1830.

— *microphylla* (small-leaved). Yellow. Valparaiso. 1830.

— *uspallatensis* (uspallatan). 1. Yellow. July. Chili. 1832.

— *viscosa* (clammy). 12. Yellow. August. Chili. 1831.

ADIA'NTUM. Maidenhair. (From *adiantos*, dry, as if plunged in water, yet remaining dry. Nat. ord., *Ferns* [Polypodiaceæ]. Linn., 24-*Cryptogamia* 1-*Filices*.)

Greenhouse and stove Ferns. Loam and peat. Root division, or seeds scattered on a moist, shady surface. Greenhouse temp. in winter, 40° to 45°, and stove winter temp., 50° to 55°.

GREENHOUSE.

A. assimile (assimilated). 1. July. N. Holland. 1823.

— *capillus Venereis* (Venus's hair). 2. July. Britain. Capillaire is so called from being made with this plant.

— *cuneatum* (wedge-shaped). 1. August. Brazil. 1820.

— *foliolosum* (leafy). Brown. August.

— *formosum* (handsome). 1. July. N. Holland. 1820.

— *hispidulum* (hairyish). 1. August. N. Holland. 1822.

— *pubesces* (downy). 1. April. N. Holland. 1830.

— *pulverulentum* (dusty). 2. July. W. Ind. 1793.

— *reniforme* (kidney-leaved). 2. July. Madeira. 1699.

— *rhomboidum* (rhomboid). 1. July. S. Amer. 1820.

STOVE.

- A. Æthiopicum* (Æthiopian). 2. Brown. September. 1838.
 — *Braziliense* (Brazilian). 2. Brazil. 1844.
 — *concinnum* (neat). 2. Brown. June. N. Holland.
 — *cordatum* (heart-shaped). Brown. Yellow. Mindanao.
 — *cristatum* (crested). 1. Brown. Jamaica. 1844.
 — *curvatum* (curved). 2. Brown. Brazil. 1841.
 — *deltoidum* (deltoid). 1. S. Amer. 1820.
 — *denticulatum* (small-toothed). Brown. July. W. Ind.
 — *fiabellifolium* (fan-leaved). 1. Brown. September. Jamaica.
 — *flavescens* (yellow). Yellow. June. W. Ind.
 — *foliosum* (leafy). 1. Brown. August.
 — *Fovianum* (Foy's). 1. Brown. May. W. Ind. 1840.
 — *hirsutum* (hairy). Brown. I. of Luzon.
 — *lucidum* (shiny). 1. Brown. August. S. Amer.
 — *lunatum* (half-moon). ♀. July. Mexico. 1823.
 — *lunulatum* (crescent-leaved). Brown. I. of Luzon.
 — *macrophyllum* (long-leaved). 1. July. Jamaica. 1793.
 — *Moritzianum* (Moritz's). 1. Brown. September. S. Amer. 1838.
 — *obliquum* (oblique). 1. Brown. April. W. Ind. 1826.
 — *patens* (spreading). 1. July. Brazil. 1824.
 — *pedatum* (pedate). 1. July. N. Amer. 1840.
 — *pentadactylon* (five-fingered). Brown. July. Brazil. 1828.
 — *radiatum* (rayed). 2. July. W. Ind. 1776.
 — *serrulatum* (tooth-edged). 1. August. Jamaica. 1822.
 — *setulosum* (bristled). 1. Norfolk Island. 1805.
 — *striatum* (line-marked). Brown. June. W. Ind. 1822.
 — *tennerum* (tender). 1. July. Jamaica. 1793.
 — *ternatum* (three-leafleted). 2. July. S. Amer. 1819.
 — *trapeziforme* (rhomb-leaved). 1½. June. W. Ind. 1793.
 — *triangulatum* (triangle-leaved). Brown. July. Trinidad. 1824.
 — *varium* (various). 1. July. S. Amer. 1820.
 — *villosum* (hairy-stalked). 1. July. Jamaica. 1775.

ADI'NA. See NAUCLEA, of which it is a synonyme. Ten other names have been given to Nauclea.

A pretty little plant, requiring a cool stove. Cuttings in sandy loam, under a bell-glass. Soil, sandy loam. Winter temp., 50° to 55°.

A. globiflora (globe-flowered). 3. White. July. China. 1804.

ADLU'MIA. (Named after *Adlum*, an American author. Nat. ord., *Fumeworts*. Allied to *Corydalis* [*Fumariacæ*]. Linn., 17-*Diadelphia* 2-*Hexandria*.)

A biennial climber, requiring common soil. Seeds.

A. cirrho'sa (tendriled). 15. White. August. N. Amer. 1778.

ADO'NIS. (Named after *Adonis* of the Classics. Nat. ord., *Crowfoots* [*Ranunculacæ*]. Linn., 13-*Polyandria* 6-*Polygynia*.)

Hardy plants; common soil; the annual species from seeds, and the perennial from seed or root division.

ANNUALS.

- A. æstivalis* (summer). 2. Scarlet. June. South of Europe. 1629.
 — *autumnalis* (autumnal. Pheasant's eye). 1. Crimson. July. Britain.
 — *citrina* (citron-coloured). 1. Orange. June. South of Europe. 1819.

PERENNIALS.

- *Appennina* (Appennine). 1. April. Yellow. Alpine. Europe.
 — *Davurica* (Dahurian). 1. April. Yellow. Siberia. 1827.
 — *distorta* (distorted). 1. April. Yellow. Naples. 1827.
 — *Pyrenaica* (Pyrenean). 1½. July. Yellow. Pyrenees. 1817.
 — *Sibirica* (Siberian). 2. April. Yellow. Siberia. 1827.
 — *vernalis* (spring). 1. March. Yellow. Europe. 1629.
 — *Volgensis* (Volga). 1. April. Yellow. Russia. 1818.

ÆCHME'A. (From *aichme*, a point; in reference to the rigid points on the calices or flower-envelopes. Nat. ord., *Bromeliacæ* [Bromeliaceæ]. Linn., 6-*Hexandria* 1-*Monogynia*.)

Suckers; light turfy loam and leaf mould; very handsome. Stove herbaceous perennials.

Æ. *discolor* (vari-coloured). 2. Scarlet, purple. June. 1844.

— *fulgens* (glowing). 1. Scarlet, blue. September. Cayenne. 1842.

— *Mertensii* (Merten's). 2. Green, red. March. Demerara. 1830.

— *macronisflora* (spring-petaled). Yellow. September. Peru. 1852.

— *suaveolens* (sweet-scented). 2½. Pink. April. Brazil. 1838.

ÆGI' CERAS. (From *aix*, a goat, and *keros*, a horn; alluding to the shape of its fruit. Nat. ord., *Ardisiads* [*Myrsinacæ*]. Linn., 5-*Pentandria* 1-*Monogynia*.)

Greenhouse evergreen shrub. Propagated from cuttings of the half-ripe shoots in summer, under a glass, in sand, and gentle heat. Soil, sandy loam and peat.

Æ. *fragrans* (fragrant). White. N. Holland. 1824.

ÆGI' PHILA. (From *aix*, a goat, and *philos*, dear; referring to its being a favourite with goats. Nat. ord., *Verbenacæ* [Verbenaceæ]. Linn., 4-*Tetrandria* 1-*Monogynia*.)

Stove evergreen shrubs. Sandy rich loam; cuttings in sand, under a glass, with bottom-heat. Winter temp., 50° to 60°; summer, 65° to 80°.

Æ. *arborescens* (arborescent). 10. White. Trinidad. 1823.

— *diffusa* (diffuse). 2. Yellow. July. W. Ind. 1824.

— *elata* (tall). 12. Pale yellow. August. W. Ind. 1823.

— *foetida* (stinking). 2. Lilac. July. W. Ind. 1820.

— *grandiflora* (large-flowered). 2. Yellow. November. Havannah. 1843.

- la'vis* (smooth). June. Yellow. Guinea. 1824.
Martinicensis (Martinique). 6. White. W. Ind. 1780.
obovata (obovate). 2. Yellow. September. W. Ind. 1804.
 — *trifida* (three-cleft). 4. White. June. Jamaica. 1826.

ÆGLE. Bengal Quince. (From *Ægle*, one of the Hesperides. Nat. ord., *Citron-worts* [Aurantiaceæ]. Linn., 13-Polyandria 1-Monogynia.)

The Marmelos is a delicious Indian fruit, possessing high medicinal qualities. Stove evergreen shrub. Cuttings of ripe-wooded shoots, in sand, under a bell-glass, with bottom heat; rich loam.

- Æ. *ma'rme'los* (ma'rme'los). 6. Whitish red. E. Ind. 1759.

ÆGOCHLOA. See NAVARETIA.

ÆOLLA'NTHUS. (From *aiolo*, to vary, and *anthos*, a flower; referring to the variability of the flowers. Nat. ord., *Labiates*, or *Lipworts* [Lamiaceæ]. Linn., 14-Didynamia 2-Angiospermia.)

Stove annual. Sandy loam; seeds.

- Æ. *suave'olens* (sweet-scented). 1. White. July. Brazil. 1825.

ÆO'NIUM. See SEMPERVIVUM.

ÆRA'NTHUS. (From *aer*, air, and *anthos*, a flower; referring to the way in which the plant grows. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-Gynandria 1-Monandria.)

Stove orchid. Division of root; on wood, or in a basket.

- Æ. *grandifl'ora* (large-flowered). 1. Yellow, green. June. Madagascar. 1823.

ÆERA'TION. Exposing soil to the air.

ÆE'RIDES. (From *aer*, the air; in reference to the power these have of living on the air. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-Gynandria 1-Monandria.)

Stove orchids. These all require a summer temp. of 60° to 85°; winter, 50° to 65°. Grow best in baskets filled with sphagnum or white bog-moss.

- Æ. *aff'ne* (related). 1. Sylhet. 1837.
 — *Brookii* (Sir A. Brooke's). Purple and white; fragrant. Bombay.
 — *crispum* (crisp). 1. White and rose. May. E. Ind. 1840.
 — *cylindricum* (cylindric). E. Ind.
 — *maculosum* (spotted). 1½. Purple-spotted. May. Bombay. 1840.
 — *odonto'chilum* (tooth-lipped). 2. Sylhet. 1837.
 — *odora'tum* (fragrant). 1½. White. August. E. Ind. 1800.
 — *quinque vul'nera* (5-wounded). ½. Pink. June. Philippines. 1838.
 — *roseum* (rose-coloured). Dwarf; rosy. E. Ind.
 — *tessela'tum* (chequered). White, green, and purple. June. E. Ind. 1838.
 — *vi'rens* (vigorous). Purple, white. April. Java. 1843.
 — *Wightia'num* (Wight's). E. Ind. 1800.

Æ'RUA. (From *eroua*, its Arabic name. Nat. ord., *Amaranths* [Amarantaceæ]. Linn., 5-Pentandria 1-Monogynia.)

Stove herbaceous plants; flowering in June. Propagated by dividing roots.

- Æ. *Java'nica* (Javanese). 2. White. E. Ind. 1769.
 — *lana'ta* (woolly). 1. White. E. Ind. 1691.

ÆSCHYNA'NTHUS. (From *aischuno*, to be ashamed, and *anthos*, a flower. Nat. ord., *Gesnerworts* [Gesneraceæ]. Linn., 14-Didynamia 2-Angiospermia.)

- Æ. *albi'dus* (whitish). 1. Java. 1849.
 — *atrosangu'neus* (dark-bloody). Dark red. July. — *Aucklandi* (Lord Auckland's). Scarlet. Borneo. 1847.
 — *Boschia'nus* (Bosch's). Scarlet. July. Java. 1843.
 — *grandiflorus* (large-flowered). 5. Scarlet. August. E. Ind. 1837.
 — *Horsfieldii* (Horsfield's). 2. Pale scarlet. August. Java. 1844.
 — *Lobbia'nus* (Lobb's). 1. Scarlet. June. Java. 1845.
 — *longiflorus* (long-flowered). 2. Scarlet. June. 1845.
 — *macula'tus* (spotted). 3. Scarlet. August. India. 1839.
 — *minia'tus* (vermilion). 1½. Scarlet. June. Java. 1845.
 — *Paxtonii* (Paxton's). Scarlet. April. Khosea. 1839.
 — *pu'lcher* (fair). Scarlet. 1. July. Java. 1845.
 — *purpura'scens* (purplish). 1. Purple, yellow. March. Java. 1845.
 — *radica'ns* (stem-fibred). Red. August. Sumatra. 1845.
 — *ramosissimus* (most-branched). 3. Scarlet. June. Khosea. 1837.
 — *speciosus* (showy). 2. May. Orange. Java. 1845.
 — *Roxburghii* (Roxburgh's). Scarlet. July. E. Ind. 1837.
 — *zebrina's* (striped). 1½. Scarlet. June. Java. 1847.

ÆSCHYNO'MENE. (From *aischuno*, to be ashamed; in reference to the supposed sensitiveness in the leaves. Nat. ord., *Leguminous Plants*. Allied to *Hedysarum* [Fabaceæ]. Linn., *Diadelphia* 4-Tetrandria.)

Stove plants. The annuals by seed in a high temperature, and the shrubs by cuttings in sand, under a bell-glass, in good heat; rich sandy loam. Winter temp., 60° to 75°; summer, 70° to 80°.

ANNUALS.

- Æ. *Americana* (American). 2. Yellow. July. Jamaica. 1732.
 — *aspera* (rough-stemmed). 2. Yellow. June. E. Ind. 1759.
 — *hi'spida* (rough-haired). 2. Yellow. N. Amer. 1803.
 — *Indica* (Indian). 2. Yellow. June. E. Ind. 1799.
 — *pu'mila* (dwarf). 3. Yellow. July. E. Ind. 1818.
 — *subviscosa* (subviscid). 1. Yellow. July. E. Ind. 1816.
 — *viscidula* (viscidish). 1. Yellow. July. Florida. 1816.

SHRUBS.

- Æ. crepitans* (rattling-podded). 4. Yellow. July. Caracass. 1820.
 — *pa'tula* (spreading). 4. Yellow. July. Mauritius. 1820.
 — *pe'ndula* (drooping). 3. Yellow. July. Mauritius. 1820.
 — *sensiti'va* (sensitive). 3. White. W. Ind. 1733.

ÆSCULUS. Horse Chesnut. (From *esca*, nourishment; referring to the ground flour from the kernels of some species. Nat. ord., *Soapworts* [Sapindacæ]. Linn., 7-*Heptandria* 1-*Monogynia*.)

Although the Horse Chesnut and other Soapworts produce wholesome or nourishing fruit, some families in this order are highly poisonous. Hardy deciduous trees. Deep rich loam.

- Æ. gla'bra* (smooth-leaved). 12. Greenish-yellow. May. N. Amer. 1812. Grafts.
 — *hippoca'stanum* (common Horse C.). 40. White. May. Asia. 1629. Seeds.
 — *fore-ple'no* (double-flowered). 40. White. May. Gardens. Grafts.
 — *foliis arge'nteis* (silver-leaved). 40. White. May. Gardens. Grafts.
 — *variegat'um* (common striped-leaved). 16. White. May. Asia. 1629. Layers.
 — *Ohio'tensis* (Ohio). 30. Seeds. White. May. N. Amer.
 — *pa'llida* (pale-flowered). 12. Greenish-yellow. June. N. Amer. 1812. Grafts or buds.
 — *rubicun'da* (red-flowered). 12. Red. June. N. Amer. 1820. Grafts or buds.

ÆTHIONE'MA. (From *aitho*, to scorch, and *nema*, a filament; in reference to some burnt appearance in the stamens. Nat. ord., *Crossworts*, or *Crucifers* [Brassicacæ]. Allied to *Lipidium*. Linn., 11-*Dodecandria* 1-*Monogynia*.)

The order of *Crucifers*—to which our Cabbages, Mustard, Cress, Turnips, and Horse-radish belong—has the universal character of being possessed with antiscorbutic and stimulating qualities. Hardy Alpine plants, suited for rock-work. Common light soil; seeds and cuttings.

ANNUALS.

- Æ. Buxbau'mii* (Buxbaum's). $\frac{1}{2}$. Pale red. June. Levant. 1823.
 — *gra'dile* (slender). $\frac{1}{2}$. Pale red. June. Carniola. 1823.
 — *saxa'tile* (rock). $\frac{1}{2}$. Flesh. June. South of Europe. 1759.

PERENNIALS.

- *heterocar'pum* (variable-podded). $\frac{1}{2}$. Purple. July. Armenia. 1837.
 — *membrana'ceum* (membranous-podded). $\frac{1}{2}$. Lilac. July. Persia. 1829.
 — *monospe'rnum* (one-seeded). $\frac{1}{2}$. Pale purple. July. Spain. 1778.
 — *parvisfo'rum* (small-flowered). $\frac{1}{2}$. Lilac. July. Persia. 1830.

ÆTHIO'NIA. (From *Æthion*, one of Phœbus' horses. Nat. ord., *Compositæ* [Asteracæ]. Linn., 19-*Syngenesia* 1-*Æqualis*.)

Greenhouse evergreen shrubs. Cuttings; common light soil.

- Æ. frutico'sa* (shrubby). 2. Yellow. June. Madeira. 1785.
 — *filifo'rmis* (thread-leaved). $\frac{1}{2}$. June. Yellow. Madeira. 1777.

AFRICAN ALMOND. *Brabe'jum*.

AFRICAN FLEABANE. *Tarchona'nthus*.

AFRICAN LILY. *Agapa'nthus*.

AFRICAN MARIGOLD. *Tage'tes ere'cta*.

AFZE'LIA. (In honour of Dr. A. Afzelius. Nat. ord., *Leguminous Plants* [Fabacæ]. Linn., 8-*Octandria* 1-*Monogynia*. Allied to Amherstia.)

Stove evergreen tree. Sandy peat and leaf-mould. Cuttings in sand, under a bell-glass. Winter temp., 55° to 60°; summer, 60° to 80°.

A. Africa'na (Africa). Crimson. June. Sierra Leone. 1821.

AGALMYLA. (From *agalma*, an ornament, and *hule*, a forest. Nat. ord., *Gesnerworts* [Gesneracæ]. Linn., 14-*Didynamia* 2-*Angiospermia*.)

It is a fine stove plant, with scarlet tubular flowers, suitable for growing on branches of trees, in baskets or in pots, in the orchid-house or moist stove. Propagated from cuttings. Sandy, fibrous peat suits it.

A. stami'nea (long-stamened). 2. November. Scarlet. June. 1846.

AGANISIA. (From *aganos*, desirable; in reference to the beauty of these neat little plants. Nat. ord., *Orchids* [Orchidacæ]. Linn., 20-*Gynandria* 1-*Monandria*.)

Grown on a block in stove; division of root.

A. pulche'lla (pretty). $\frac{1}{2}$. Cream-coloured. June. Demerara. 1838.

AGANOSMA. (From *aganes*, mild, and *osme*, small. Nat. ord., *Dogbanes* [Apocynacæ]. Linn., 5-*Pentandria* 1-*Monogynia*.)

The order of *Dogbanes* includes a host of most beautiful plants—as *Allamanda*, *Echites*, *Oleander*, &c. They are venomous in many cases, and always to be suspected. These stove plants are propagated by cuttings in sand, under glass, and with bottom-heat; they prefer a mixture of loam, sand, and peat.

A. acumina'ta (pointed-leaved). White, fragrant. Sylhet. Shrubby climber.

— *caryophylla'ta* (clove-scented). Pale yellow. October. E. Ind. 1812. Shrubby twiner.

— *cymo'sa* (cymose-flowered). White, fragrant. Sylhet. Shrub.

— *e'legans* (elegant). Purple. E. Ind. Shrubby twiner.

— *margina'ta* (bordered). White, fragrant. Sylhet. Shrubby twiner.

— *Roxbu'rgii* (Roxburgh's). White, fragrant. October. E. Ind. 1812. Shrubby twiner.

— *Walli'chii* (Wallich's). White, fragrant. E. Ind. Shrubby twiner.

AGAPANTHUS. Blue African Lily. (From *agape*, love, and *anthos*, a flower, Nat. ord., *Lilyworts* [Liliacæ]. Linn., 6-*Hexandria* 4-*Tetragynia*.)

Half-hardy plants from the Cape of Good Hope. Sandy loam; suckers. Require to be kept in a cold pit during winter.

- A. umbellatus* (umbelled). 3. Blue. April. 1692.
 — *albidus* (whitish-umbelled). 2. Whitish-September.
 — *variegatus* (variegated-umbelled). 2. Blue. April.

AGA'RIOUS. (From *Agaria*, the name of a town in Sarmatia. Nat. ord., *Mushrooms* [Fungi]. Linn., 24-*Cryptogamia* 5-*Fungi*.)

This very large genus of fungous plants includes the Mushroom (*A. campestris*) and the Fairy-ring Mushroom (*A. pratensis*), with a few others, which are eatable; but, except the two named, they are too dangerous for us to recommend them. See MUSHROOM.

AGA'STACHYS. (From *agastos*, admirable, and *stachys*, a spike. Nat. ord., *Proteads* [Proteaceæ]. Linn., 4-*Tetrandria* 1-*Monogynia*.)

A greenhouse evergreen shrub. Ripe-wooded cuttings in sand, under a glass, and in a cold frame; equal parts loam, sand, and peat.

- A. odorata* (fragrant). 3. Pale yellow. June. N. Holland. 1826.

AGATHE'A. (From *agathos*, excellent; in reference to the beauty of the flowers. Nat. ord., *Composites*. Allied to *Aster* [Asteraceæ]. Linn., 19-*Syngenesia* 2-*Superflua*.)

Greenhouse plants; cultivated like the *Cineraria*, which they much resemble.

- A. celestis* (heavenly). 2. Blue. June. Cape of Good Hope. 1759.
 — *linifolia* (flax-leaved). 2. Blue. June. Cape of Good Hope. 1800.

AGATHE'LPIS. (From *agathos*, pleasant, and *thelis*, a woman. Nat. ord., *Selagiads* [Selaginaceæ]. Linn., 14-*Didynamia* 2-*Angiospermia*.)

Greenhouse evergreen shrubs. Cuttings of half-ripe shoots in April, in sandy loam, under a glass without heat. Soil, peat and sandy loam, equal parts. Winter temp., 40° to 45°.

- A. parvifolia* (small-leaved). White. May. Cape of Good Hope. 1816.
 — *angustifolia* (narrow-leaved). White. May. Cape of Good Hope. 1823.

AGATHOPHYLLUM. Madagascar Nutmeg. (From *agathos*, pleasant, and *phyllo*, a leaf; referring to the pleasant, clove-like smell of the leaf. Nat. ord., *Laurels* [Lauraceæ]. Linn., 11-*Dodecandria* 1-*Monogynia*.)

Stove evergreen tree. Peat, and light rich loam; cuttings.

- A. aromaticum* (aromatic). 30. White. Madagascar. 1823.

AGATHO'SMA. (From *agathos*, pleasant, and *osma*, smell. Nat. ord., *Rueworts*. Allied to *Diosma* [Rutaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*.)

The Rueworts are principally distinguished for their bitterness and powerful smell. Greenhouse evergreen shrubs, all from the Cape of Good Hope, and all blooming in May and June. Peat and sand; cuttings of young shoots in sand, under a glass, without heat. Winter temp., 40° to 45°. In summer a rather shady place.

- A. acuminata* (sharp-pointed-leaved). 5. Violet. 1812.
 — *ambigua* (doubtful). 2. White. 1810.
 — *brevisolia* (short-leaved). 2. Purple. 1818.
 — *Bruniades* (*Brunia*-like). 2. Purple. 1820.
 — *cerefolia* (chervil-leaved). 2. White. 1774.
 — *ciliata* (eyelash-haired). 2. White. 1774.
 — *erecta* (upright). 2. Blue, white. 1816.
 — *hirta* (hairy). 2. Purple. 1794.
 — *exsiccata* (dried-up, hairy). 2. Purple. 1718.
 — *purpurea* (purple, hairy). 2. Purple. 1791.
 — *Ventenatiana* (*Ventenat's* hairy). 2. Purple. 1794.
 — *hispidula* (rough-haired). 1. Violet. 1786.
 — *imbricata* (imbricated). 3. Pink. 1774.
 — *linifolia* (flax-leaved). 2. White. 1823.
 — *orbicularis* (round-leaved). 2. White. 1800.
 — *prolifera* (proliferous). 2. White. 1790.
 — *pubescens* (downy). 1. White. 1798.
 — *reflexa* (reflex-leaved). 2. Purple. 1820.
 — *rugosa* (coarsely-wrinkled). 2. White. 1790.
 — *vestita* (clothed). 2. White. 1824.
 — *villosa* (long-haired). 2. Violet. 1786.

AGATHYRSUS. (From *agathos*, pretty, and *thyrsus*, a thyrs, or dense panicle; referring to the handsome flowers so produced. Nat. ord., *Composites*. Allied to *Hawkweed* [Asteraceæ]. Linn., 19-*Syngenesia* 1-*Æqualis*.)

All hardy herbaceous perennials, except *A. alpinus*, which is an annual, and *A. floridanus*, which is biennial. Root division and seeds. Common garden-soil.

- A. alpinus* (alpine). 4. Blue. July. Scotland.
 — *cyaneus* (blue). 2. Blue. July. Nepaul. 1820.
 — *floridanus* (Florida). 6. Blue. July. Iberia. 1820.
 — *Lappo-nicus* (Lapland). 6. Blue. July. N. Amer. 1713.
 — *Plumieri* (*Plumier's*). 6. Blue. August. Lapland. 1804.
 — *Sibiricus* (Siberian). 2. Blue. August. Pyrenees. 1794.
 — *Tataricus* (Tartarian). 4. Blue. August. Siberia. 1784.

AGATI. (The Sanserit name for it. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 17-*Diadelphia* 4-*Tetrandria*. Allied to *Galega*.)

Stove evergreen trees. Loam and peat in equal proportions; cuttings in sand, under a glass, with bottom-heat.

- A. coccinea* (scarlet). 25. Red. August. E. Ind. 1768.
 — *grandiflora* (large-flowered). 20. Red. August. E. Ind. 1820.

AGA'VE. Aloe. (From *agavos*, admirable; referring to the stately form in which some of them flower. Nat. ord., *Amaryllids*. Linn., 6-*Hexandria* 1-*Monogynia*.)

The fibre of some species of aloe has been manufactured into ropes and paper, and the juice into an intoxicating liquor called pulque, from which, in its turn, brandy is distilled. Stove and greenhouse succulent plants. Rich loamy soil, decayed vegetable mould, and brick rubbish; suckers.

STOVE.

- A. angustifolia* (narrow-leaved). 6. Green. 1790.
 — *brachystachys* (short-spiked). 3. Green. Mexico. 1820.
 — *elegans* (elegant). Mexico. 1835.
 — *filicoides* (feeble). 6. Green. S. Amer. 1790.
 — *Karatto* (Karatto). 5. Green. S. Amer. 1763.
 — *lurida* (lurid). 8. Green. June. Vera Cruz. 1731.
 — *Mexicana* (Mexican). 5. Green. Mexico. 1817.
 — *Müllerii* (Miller's). 6. Green. 1763.
 — *polycantha* (many-spined). 6. Green. August. 1800.
 — *univittata* (one-striped). Green. Mexico. 1830.
 — *vivipara* (viviparous). 15. Green. September. S. Amer. 1731.
 — *yuccafolia* (yucca-leaved). 6. Yellow. 1816.

GREENHOUSE.

- A. Americana* (American aloe). 20. Yellow. August. S. Amer. 1640.
 — — *variegata* (variegated aloe). 12. Yellow. August. S. Amer. 1640.
 — *glaucescens* (glaucous). Mexico. 1835.
 — *polycanthoides* (polycantha-like). Mexico. 1835.
 — *pulcherrima* (most beautiful). Mexico. 1835.
 — *saponaria* (soap). Brown. July. Peru. 1838.
 — *Virginica* (Virginian). 3. Purple. N. Amer. 1765.

AGENO'RA. See SERI'OLA.

AGE'RATUM. (From *a*, not, and *geras*, old; in reference to the flowers being always clear. Nat. ord., *Compositæ* [*Asteraceæ*]. Linn., 19-Syngenesia 1-Æqualis.)

All annuals, but may be kept perennials by cuttings, or in pots, if not allowed to ripen seeds. The first two greenhouse; the others, except *A. Mexicanum*, hardy. Light rich soil; cuttings and seeds.

- A. angustifolium* (narrow-leaved). 1. White. July. Monte Video. 1827.
 — *caeruleum* (sky-blue). 1. July. W. Ind. 1800.
 — *conyzoides* (conyza-like). 1. Light blue. July. America. 1714.
 — *latifolium* (broad-leaved). 2. White. July. Peru. 1800.
 — *Mexicanum* (Mexican). 2. Blue. June. Mexico. 1822. Greenhouse.
 — *strictum* (upright). 2. White. June. Nepal. 1821.

AGLA'IA. (The name of one of the three Graces. Nat. ord., *Meliaceæ* [Linn., 5-Pentandria 1-Monogynia].)

Until very recently this interesting Chinese plant was referred to the Citronworts. Stove evergreen shrub. Light loam, decayed dung, and peat; half-ripe cuttings in sand, under a glass, in a cold frame.

A. odorata (sweet-scented). Striped, February. China. 1810.

AGLAOMORPHA. (From *aglaos*, beauti-

ful, and *morpha*, a form. Nat. ord., *Fernæ* [Polypodiaceæ]. Linn., 24-Cryptogamia 1-Filices.)

Stove herbaceous Fern. Root division and seed; light, rich loam and peat.

A. Meyeriana (Meyer's). Yellow. May. Island of Luzon.

AGLAONE'MA. See A'RUM.

AGNO'STUS. See STENOCA'RPUS.

AGONIO'PTERIS. See AGRO'STICHUM.

AGRIMO'NIA. Agrimony. (From *agremone*, a plant used by the Greeks in cataract of the eye. Nat. ord., *Roseworts* [Rosaceæ]. Allied to *Potentilla*. Linn., 11-Dodecandria 2-Digynia.)

Hardy herbaceous plants. Root division; common garden-soil.

A. Eupatoria (Eupatoria). 3. Yellow. June. Britain.

— *Nepalensis* (Nepaul). 3. Yellow. June. Nepaul. 1820.

— *odora'ta* (scented). 4. Yellow. July. Italy. 1640.

— *sua'veolens* (sweet-smelling). 3. Yellow. July. Virginia. 1810.

AGROMY'ZA VIO'LE. Pansy Fly. Attacks the flower by puncturing the petal, and extracting the juice; the puncture causes the colouring matter to fade. Very minute; shining black; bristly; eyes green; head orange. Appears in May.

AGROSTE'MMA. Rose Champion. (From *agros*, a field, and *stemma*, a crown; referring to the beauty of the flowers. Nat. ord., *Cloveworts* [Caryophyllaceæ]. Linn., 10-Decandria 4-Tetragynia.)

Hardy herbaceous perennials. Common soil; division or seed.

A. Bungeana (Don Bunge's). 1. Scarlet. July. Russia. 1834.

— *decumbens* (hanging-down). 1. Crimson. July.

— *Pyrenaica* (Pyrenean). 1. Pale rose. June. Pyrenees. 1819.

— *Suecica* (Swedish). Pink. August. Sweden. 1824.

AILA'NTHUS. (From *ailanto*, tree of heaven; referring to its lofty growth. Nat. ord., *Xanthoxyls* [Xanthoxylaceæ]. Linn., 23-Polygamia 11-Diœcia.)

Deciduous trees. Cuttings of the roots; sandy loam and peat.

A. excelsa (lofty). 50. Green. E. Ind. 1800. Stove.
 — *glandulosa* (glandulous). 20. Green. China. 1751. Hardy.

AIR. Atmospheric air is uniformly and universally composed of—

Oxygen	21
Nitrogen	79

Every 100 parts, even in the driest weather, containing, in solution, one part of water; and in every 1000 parts having

admixed about one part of Carbonic acid. The average proportions are—

Air	98.9
Watery vapour	1.0
Carbonic Acid Gas	0.1

All these are absolutely necessary to every plant, to enable it to vegetate with all the vigour of which it is capable; and on its due state depends, in a great measure, the health of any plant requiring the protection of glass. *See* LEAVES, ROOTS, VENTILATION.

AIR (GIVING) is a term commonly used by gardeners, who mean by the term, lowering the upper sashes of the house, pit, or frame, to allow the escape of excessive heat, bad air, and vapour, and opening, at the same time, the front sashes, to admit fresh air. The openings should be so regulated as to equalize the escape and supply, and according to the liveliness of the current of air desired to be maintained.

AIR-PLANT. *Ae'rides*.

AITO'NIA. (In honour of *Mr. W. Aiton*, once head-gardener at Kew. Nat. ord., *Meliads* [*Meliaceæ*]. Linn., 16-*Monadelphina* 5-*Pentandria*.)

Greenhouse evergreen shrub. Loam and peat; cuttings of young wood, in sandy loam, under a glass, with bottom-heat.

A. Cape'nsis (Cape). 2. Pink. July. Cape of Good Hope. 1777.

AJAR. Used to denote the smallest amount of opening to allow the entrance of air, and usually applied to the front sashes or lights.

A'JUGA. Bugle. (From *a*, not, and *zugon*, a yoke; in reference to the calyx being one-leaved. Nat. ord., *Labiates*, or *Lipworts* [*Lamiaceæ*]. Linn., 14-*Didynamia* 1-*Gymnospermia*.)

Hardy plants. Common garden-soil; division, or seeds.

ANNUALS.

A. chamæ'pitys (ground-pine). 1. Yellow: July. England.

— *I'va* (Iva). 1. Yellow. May. South of Europe. 1759.

PERENNIALS.

A. austro'lis (southern). 1. Blue. July. N. Holland. 1823.

— *folio'sa* (leafy). 1. Blue. August. Switzerland. 1826.

— *Geneve'nsis* (Geneva). 1. Flesh. July. Switzerland. 1656.

— *integrifo'lia* (entire-leaved). 1. Blue. June. Nepaul. 1821.

— *orienta'lis* (oriental). 2. Blue. June. Levant. 1752.

— *pyramida'tis* (pyramidal). 3. Blue. May. Britain. A beautiful plant.

— *ru'bra* (red-flowered). 1. Red. May. Britain.

A. ru'bra variegata (variegated-leaved). 1. Blue. April. Britain.

— *rupe'stris* (rock). 1. Blue. May. Switzerland. 1826.

AKE'BIA. (The name it bears in Japan. Nat. ord., *Lardizabalads* [*Lardizabaleæ*]. Linn., 21-*Monæcia* 6-*Hexandria*.)

The fruit of *Akebia quinata* is used in Japan as an emollient medicine. Greenhouse evergreen twiner. Root division and cuttings; sandy loam and peat.

A. quina'ta (five-leafleted). Lilac-pink. March. Chusan. 1845.

AKEE-TREE. *Bli'ghia sa'pida*.

ALANGIUM. (The Malayan name for two trees, bearing fruit not palatable to Europeans. Nat. ord., *Alangiads* [*Alangiaceæ*]. Linn., 12-*Icosandria* 1-*Monogynia*.)

Stove evergreen trees. Loam, mixed with peat; cuttings under glass, with bottom-heat.

A. decapeta'tum (ten-petaled). 10. Pale purple. E. Ind. 1779.

— *hezapeta'tum* (six-petaled). 15. Purple. E. Ind. 1823.

ALBU'CA. From *albicans*, or *albus*. white; referring to the prevalence of white flowers in the genus. Nat. ord., *Lilyworts* [*Liliaceæ*]. Linn., 6-*Hexandria* 1-*Monogynia*.)

Greenhouse bulbs; all from the Cape of Good Hope, except the first-named. Sandy loam and peat; suckers from the old bulb, or leaves taken off with a scale. Well adapted for planting out in a border of light loam, in front of a greenhouse; to be covered from frost like *Ixias*.

A. Abyssini'ca (Abyssinian). 2. White. August. 1818.

— *alt'i'ssima* (tallest). 4. White. May. 1789.

— *au'rea* (golden). 2. Greenish-yellow. June. 1818.

— *cauda'ta* (tailed). 2. Yellow. June. 1791.

— *coarcta'ta* (compressed). 2. White. June. 1774.

— *exuvia'ta* (adder's skin). 1. White. June. 1795.

— *fastigia'ta* (peaked). 2. White. June. 1774.

— *filifo'lia* (thread-leaved). 1. Yellow. June. 1820.

— *fla'ccida* (weak). 2. Yellow, green. June. 1791.

— *fra'grans* (fragrant). 1. Yellow, green. July. 1791.

— *fu'gaz* (fleeing). 1. Green, yellow. July. 1791.

— *Garde'ni* (Capt. Garden's). White. October. Natal. 1854.

— *ma'jor* (greater). 3. Green, yellow. May. 1759.

— *mi'nor* (smaller). 1. Yellow. May. 1768.

— *physo'des* (flatulent). 1. White. June. 1804.

— *seto'sa* (bristly). 1. Green. June. 1795.

— *spira'lis* (spiral-leaved). 1. White. June. 1795.

— *viridifo'ra* (green-flowered). 1. Green. June. 1794.

— *visco'sa* (clammy-leaved). 1. White, green. June. 1779.

— *vitta'ta* (banded). 1. Yellow, green. June. 1802.

ALBU'RNUM. The layers of young wood next beneath the bark, in which layers the vessels are situated for conveying the sap from the roots to the leaves.

ALCHEMI'LLA. Lady's Mantle. (From

alkemelyeh, its Arabic name. Nat. ord., *Sanguisorbaceae* [Sanguisorbaceae]. Linn., 4-Tetrandria 1-Monogynia.)

Herbaceous perennials. Common dry soil; seeds, or divisions.

GREENHOUSE.

A. Cape'nsis (Cape). 1. Green. June. Cape of Good Hope. 1818.
— *sibbaldiaefolia* (sibbaldia-leaved). 1. White. June. Mexico. 1823.

HARDY.

A. alpina (alpine). 1. Green. June. Britain.
— *fl'ssa* (cleft-leaved). 1. Green. July. Switzerland. 1826.
— *pentaphylla* (five-leaved). 1. White. July. Switzerland. 1784.
— *pube'scens* (downy). 1. Green. July. Caucasus. 1813.
— *sericea* (silky). 1. Green. July. Caucasus. 1813.

ALCO'VE. A seat in a recess, formed of stone, brick, or other dead material.

A'LDER. See A'L'NUS.

AL'E'TRIS. (From *aletron*, meal; referring to the powdery appearance of the whole plant. Nat. ord., *Bloodworts* [Hæmodoraceae]. Linn., 6-Hexandria 1-Monogynia.)

A. farinosa is the most intense of bitters known. Hardy herbaceous perennials. Shady situation. Peat or loam and leaf-soil; offsets.

A. au'rea (golden-tipped). 1. Yellow. July. N. Amer. 1811.
— *farinosa* (mealy). 1. White. June. N. Amer. 1768.

AL'E'URT'ES. (The name is the Greek word for *mealy*; in reference to the mealy appearance of the plants. Nat. ord., *Spurgeworts* [Euphorbiaceae]. Allied to *Croton*.)

Stove evergreen trees. Loam. Ripe cuttings root readily in sand, under a glass, in heat.

A. cordata (heart-leaved). Japan. 1818.
— *triloba* (three-lobed). 10. Apetal. October. Society Islands. 1793.

ALEXANDER or ALISANDER (*Smyr'nium olusatrum*) received its common name from the Greek, which means "a helper of man," because formerly believed to possess powerful medicinal properties. It was also much cultivated for its stems, when blanched, to be eaten as celery, which it slightly resembles in flavour. Sow any time from the end of March to the commencement of May, in drills three feet apart. Thin the plants when four inches high to a foot apart, and the seedlings removed may be planted in rows at similar distances. *Earth them up*, to blanch like celery, when about a foot high. The plants will last two years; but the stems are finer and crisper, if raised from seed annually. Grow it on

a rich, light soil, and give it abundance of water and liquid-manure.

ALEXANDRIAN LAUREL. *Ruscus racem'osus*.

ALHA'GI. (The Arabic name of the plant. Nat. ord., *Leguminous Plants*. Allied to *Hedysarum* [Fabaceae]. Linn., 17-Diadelphica 1-Tetrandria.)

The natural secretion from the leaves and branches of *A. Maurorum* is supposed by some to be the manna of Scripture. It is worthy of remark, that this secretion is not now formed in Arabia, Egypt, or India, but only in Persia, where it is highly esteemed as food for cattle. Both require the protection of a greenhouse in winter. Sandy loam and peat; young cuttings and seeds, the first in sand, the latter in a hot-bed. Winter temp., 40° to 45°; in summer, 55° to 70°.

A. camelo'rum (camels). 2. Red. July. Siberia. 1816.

— *Mauro'rum* (Moors). 2. Red. July. Egypt. 1714.

ALIBE'RTIA. (In honour of *Alibert*; a French chemist. Nat. ord., *Cinchonads* [Cinchonaceae]. Linn., 5-Pentandria 1-Monogynia.)

Stove evergreen tree. Cuttings; sandy peat.

A. edulis (eatable). 12. Cream-coloured. Guiana. 1823.

ALI'SMA. Water Plantain. (From the Celtic word *alis*, water. Nat. ord., *Alismads* [Alismaceae]. Linn., 6-Hexandria 4-Polygynia.)

Hardy aquatics. Seed; sandy peat immersed in water. *A. plantago* is recommended in hydrophobia.

A. lanceolata (spear-leaved). 2. Pure white. July. Britain.

— *natans* (floating). 1. White. July. Wales.

— *parvifl'ora* (small-flowered). 1. July. N. Amer. 1816.

— *plantago* (plantain). 2. Pure white. July. Britain.

— *ranunculoides* (ranunculus-like). 1. Purple. August. Britain.

— *trivialis* (trivial). 2. White. July. N. Amer. 1816.

ALLAMA'NDA. (In honour of *Dr. Allamand*, of Leyden. Nat. ord., *Dogbanes* [Apocynaceae]. Linn., 5-Pentandria 1-Monogynia.)

This order is remarkable for handsome flowering plants, with deleterious qualities. An infusion of the leaves of *A. cathartica* is a valuable purgative. Stove evergreen climbers. Rich loam; cuttings root readily in sand, with bottom-heat and moist air. Winter temp., 55° to 65°; summer, 65° to 75°.

A. cathartica (cathartic). 12. Yellow. July. Guiana. 1785.

— *grandifl'ora* (large-flowered). Yellow. June. Brazil. 1844.

— *Parac'ensis* (Paran). Yellow. Brazil. 1846.

— *Scho'ttii* (Schott's). September. Yellow. Brazil. 1847.

— *verticillata* (whorl-leaved). June. E. Ind. 1813.

ALLANTO'DIA. (From *allantos*, a sausage; in reference to the cylindrical form of the indusium, or the case which encloses the seeds of Ferns. Nat. ord., *Ferns* [Polypodiaceæ]. Linn., 24-*Cryptogamia* 1-*Filices*.)

Greenhouse Ferns; division of the roots, or sowing spores; equal parts, turfy peat and loam.

- A. australis* (southern). Brown. Van Diemen's Land. 1820.
- *axillaris* (axillary). 2. Brown. Madeira. 1779.
- *strigosa* (strigose). 2. Brown. Madeira.
- *tenera* (tender). 1. Brown. N. Holland. 1820.
- *umbrosa* (shade-loving). 4. Brown. Madeira. 1779.

ALLEYS are of two kinds:—1. The narrow walks which divide the compartments of the kitchen-garden; and, 2. Narrow walks in the shrubberies and pleasure-grounds, closely bounded and overshadowed by the shrubs and trees.

ALLIGATOR PEAR. *Pe'rsia gratissima*.

ALLIONIA. In honour of *C. Allioni*, an Italian botanist. Nat. ord., *Nyctagos*. Allied to the Marvel of Peru [*Nyctagynaceæ*]. Linn., 4-*Tetrandria* 1-*Mono-gynia*.)

Hardy annuals. Seeds; sandy loam.

- A. incarnata* (flesh-coloured). 1. Flesh. August. Cumana. 1820.
- *ovata* (egg-leaved). 1. Purple. July. N. Amer. 1827.
- *violacea* (violet-coloured). 1. Violet. July. Cumana. 1820.

ALLIUM. (From the Celtic *all*, meaning hot, or burning; referring to the well-known qualities of all the Onion-worts, which are now classed in the Nat. ord., *Lilyworts* [Liliaceæ]. Linn., 6-*Hexandria* 1-*Mono-gynia*.)

The onion, garlic, and leek, according to Dr. Royle, are the plants translated as such in the Bible (*Num.* ch. xi. 5). The genus includes the onion, garlic, &c. Hardy bulbs. Seeds or offsets; rich, light loam.

- A. ampeloprasum* (vine-leek). 2. Purple. May. England.
- *Andersonii* (Anderson's). 1. Purple. July. Siberia. 1818.
- *angulosum* (angulose). 1. Light purple. June. Germany. 1739.
- *ascalonicum* (askalon, or shallot). 1. Purple. June. Palestine. 1546.
- — *ma'jus* (greater askalon, or scallion). 1. Purple. July. South of Europe.
- *asperum* (rough). 1. Purple. August. South of Europe. 1800.
- *azurum* (blue-coloured). 1. Blue. October. 1830.
- *brachystemon* (short-stemmed). 1. White. June. Europe. 1819.
- *ceruleum* (sky-blue). Blue. June. Russia. 1840.
- *cepa* (onion). 3. White. June.
- — *aggregatum* (aggregated onion). 1. White. June

- A. cepa pauciflorum* (few-flowered onion). 2. White. June.
- *cepastrum* (onion-form). 2. White. August. 1824.
- *cine'reum* (grey). 1. Straw. July. Siberia. 1829.
- *confertum* (crowded). 4. Purple. August. Europe.
- *congestum* (crowded-flowered). 1. Purple. May. Siberia. 1818.
- *contrave'strum* (contrary-stemmed). 1. Purple. 1816.
- *descendens* (down-flowering). 1. July. Purple. Switzerland. 1796.
- *Fischeri* (Fischer's). 1. Lilac. July. Siberia. 1829.
- *fistulosum* (pipe-leaved). Welsh onion. 2. Green, yellow. April. Siberia. 1629.
- *glau'cum* (milky-green). Pink. June. Siberia. 1800.
- *Illyricum* (Illyrian). 1. Purple. July. Austria. 1820.
- *intermedium* (intermediate). 2. White. August. South of Europe. 1827.
- *litto'reum* (sea-side). 2. Purple. Italy. 1818.
- *longifolium* (long-leaved). 1. Dark purple. July. Mexico. 1826.
- *medium* (middle). 1. White. June. Hungary. 1820.
- *moly* (moly). 1. Yellow. June. South of Europe. 1604.
- *ophiosco'rodon* (garden rocambole). 4. Pale red. August. Greece.
- *oxypetalum* (sharp-petaled). 2. White. August. South of Europe. 1818.
- *porrum* (leek). 2. White. Switzerland. 1562.
- *proliferum* (proliferous). 3. White. 1820.
- *pulchrum* (beautiful). Yellow. June. South of Europe.
- *Purshii* (Pursh's). 2. Pink. August. N. Amer. 1818.
- *ramosum* (branchy). 2. Pale yellow. June. Siberia. 1819.
- *sativum* (garlic). 2. White. June. Sicily. 1548.
- *sclanoprasum* (chives). $\frac{1}{2}$. Flesh. May. Britain.
- *scorodoprasum* (rocambole). 3. Light purple. July. Denmark. 1596.
- *scorzonerafolium* (scorzonera-leaved). 1. Yellow. June. South of Europe. 1820.
- *spuri'um* (spurious). 1. Purple. June. Siberia. 1820.
- *Victoria'lis* (Victor's). 2. Green, yellow. May. Austria. 1739.
- — *angustifolium* (Victor's narrow-leaved). 1. Green, yellow. April. Scotland.
- *violaceum* (violet). 1. Violet. June. Europe. 1823.
- *Waldste'nii* (Waldstein's). 2. June. Hungary. 1826.

ALLOPLE'CTUS. (From *allos*, diverse, and *plekein*, to plait; in reference to the leaves. Nat. ord., *Gesnerworts* [Gesneraceæ]. Linn., *Didynamia* 2-*Angiospermia*.)

Stove evergreens. Light, rich soil; cuttings.

- A. dichrous* (two-coloured). 2. Purple, yellow. Brazil. 1845.
- *repens* (creeping). Yellow, brown. February. St. Martha. 1845. This is a climbing plant.

ALLOSO'RUS. (From *allos*, diverse, and

soros, a heap; in reference to the variety of the patches of fructification—**sori**—on the back of the leaf. Nat. ord., *Ferns* [Polypodiaceæ]. Linn., 24-*Cryptogamia 1-Filices*.)

A. calomelans (deltoid-leaved). Cape of Good Hope.

— *cordatus* (heart-leaved). December. Mexico. 1842.

— *crispus* (curled). ‡. Brown. July. Britain.

— *flexuosus* (zigzag). 4½. Peru.

ALLOTMENT. A space of land divided amongst so many labourers or artisans, and generally at the same price as that which the farmer pays. It may just be such a piece of ground as a man and his family may successfully cultivate in their over-hours, after attending to their usual employment during the day. The term allotment thus becomes synonymous with *garden*; and, if near to the occupier's home, such a piece of ground is of great importance to him, socially and morally. Or, secondly, an allotment may be such a space of ground as will secure the labourer in employment, when otherwise he might be without it. In that sense it becomes a mere temporary palliative for a social evil, and ultimately entails upon its occupier all the disadvantages of a small farmer, without many of his benefits.

ALLSEED. *Polyca'rpon*.

ALLSPICE. *Calyca'nthus*.

ALLSPICE-TREE. *Pime'nta*.

ALLUVIAL SOIL is so called from the Latin word *alluere*, to wash down; because the soil so named is that rich deposit of finely-divided earths and decomposing vegetable matters which, forming the land in valleys, and on the banks of rivers, is evidently formed of the richest and finest portions, washed down from higher-situated soils. Alluvial soils are usually very fertile, and excellent for pasturage.

ALMOND. *Amygdalus*.

ALNUS. The Alder-tree. (From *al*, near, and *lan*, the bank of a river; in reference to the situation where the Alder delights to grow. Nat. ord., *Birchworths* [Betulaceæ]. Linn., 21-*Monæcia 4-Tetrandria*.)

Hardy deciduous trees. The flowers have no petals. Layers, or seeds; light loam, in moist situation.

A. barba'ta (bearded). March. Russia. 1838.

— *Canadensis* (Canadian). June. Canada.

— *cordifolia* (heart-leaved). June. Naples. 1818.

— *glauca* (milky-green). June. N. Amer. 1820.

— *glutinosa* (sticky). April. Britain.

A. glutinosa emarginata (five-notched-leaved).

April. Britain.

— *foliis variegatis* (variegated-leaved).

April. Britain.

— *incisa* (cut-leaved). April. Britain.

— *lacinia'ta* (jagged-leaved). April. Britain.

— *quercifolia* (oak-leaved). April. Britain.

1838.

— *incana* (hoary-leaved). 20. June. Europe. 1790.

— *angulata* (angular-leaved). 20.

— *pinnata* (pinnate). 26. June. Europe.

— *Jorullensis* (Jorulla). Mexico.

— *macrocarpa* (long-fruited). 20. June.

— *macrophylla* (long-leaved). 20. June. Na-

ples.

— *obcordata* (two-lobed). March. Russia.

— *oblongata* (oblong-leaved). 20. June. South

of Europe. 1790.

— *elliptica* (elliptic-lobed). 20. June.

— *oxyacanthifolia* (oxycanth-leaved). 20. June.

— *pumila* (dwarf). 10. June.

— *rubra* (red). 20. June.

— *rugosa* (wrinkled). March. N. Amer.

— *serrulata* (saw-leaved). 20. June. N. Amer.

1769.

— *Sibirica* (Siberian). Siberia. 1820.

— *subrotunda* (roundish-leaved). 23. April.

— *undulata* (wave-leaved). 20. June. N. Amer.

1782.

ALOCA'SIA. See **COLOCA'SIA**.

A'LOE. (From *alloeh*, its Arabic name. Nat. ord., *Lilyworths* [Liliaceæ]. Linn., 6-*Hexandria 1-Monogynia*.)

Greenhouse evergreen succulents, from the Cape of Good Hope. Sandy loam and peat, with a little reduced manure, and full one-third of broken bricks and lime-rubbish, and good drainage. Give very little water in winter. Medium temp. in winter, 40°; in summer, 50° to 70°; water with care in winter. Propagated from suckers or leaves, inserted in gravelly soil. As purgatives, the juice of the tree-aloes are exclusively in use, particularly that of *A. socotrina*, *vulgaris*, *purpurascens*, and *spicata*.

A. acuminata (spike-leaved). Orange. April. 1795.

— *albispina* (white-spined). Scarlet. June. 1796.

— *albocincta* (white-banded). Orange. June.

1812.

— *arborescens* (tree-like). Red. June. 1731.

— *arista'ta* (awned). Orange. May. 1801.

— *brevifolia* (short-leaved). Orange. June. 1810.

— *caesia* (grey). 2. Orange. July. 1818.

— *elatior* (taller). 9. Red. June. 1821.

— *Chinensis* (Chinese). Yellow. June. 1821.

— *ciliaris* (hair-fringed). Red. June. 1821.

— *Commelinii* (Commelin's). 1819.

— *depressa* (depressed). Orange. August. 1831.

— *dichotoma* (pair-branched). Red. July. 1781.

— *distans* (distant). 6. Red. July. 1732.

— *depressa* (flat-leaved). 6. Red. July. 1820.

— *reflexa* (reflexed). 4. Red. July. 1820.

— *echinata* (hedge-hog). 6. 1820.

— *flavispina* (yellow-spined). Red. August. 1793.

— *frutescens* (shrubby). Red. June. 1818.

— *glauca* (milky-green). Red. April. 1731.

— *rhodantha* (lesser red-spined). 4. Red.

May. 1731.

— *gracilis* (graceful). Orange. June. 1822.

— *humilis* (humble). Orange. April. 1731.

— *incurva* (incurved). Orange. May. 1791.

— *latifolia* (broad-leaved). Scarlet. July. 1775.

— *lineata* (line-marked). Scarlet. 1789.

— *glaucescens* (milky-green-marked). Scar-

let. 1789.

A. mitraeforrmis (mitre-shaped). Red. August. 1731.

— *nobilis* (noble). Blue. August. 1809.

— *pallascens* (palish). Red. July. 1820.

— *paniculata* (panicked). Scarlet. July. 1795.

— *pluridentis* (many-toothed). Red. July. 1823.

— *proliifera* (proliferous). Orange. April. 1819.

— *major* (larger proliferous). Orange. April. 1819.

— *purpurascens* (purplish). Purple. August. 1789.

— *saponaria* (soapy). Red. July. 1727.

— *teostriata* (yellow-striped, soapy.) Red. July. 1821.

— *severa* (saw). Orange. July. 1818.

— *serrulata* (finely-toothed). Red. July. 1789.

— *socotrina* (socotrine). Red. March. 1731.

— *spicata* (spiked). Red. 1795.

— *spiniosior* (more spiny). Red. April. 1820.

— *striatula* (slight-striped). Red. June. 1821.

— *suberecta* (slightly-leaning). Scarlet. April. 1789.

— *semiguttata* (half-spotted). Orange. May. 1819.

— *subtuberculata* (slightly-knobbed). Orange. June. 1820.

— *tenuifolia* (thin-leaved). Orange. June. 1831.

— *tenuior* (thinned). Orange. June. 1821.

— *tuberculata* (knobbed). Orange. April. 1795.

— *variegata* (variegated). Pink. June. 1790.

— *santhacantha* (yellow-spined). Orange. June. 1817.

ALO'MIA. (From *a*, not, and *loma*, a fringe. Nat. ord., *Composites*. Allied to *Eupatoria* [Asteraceæ]. Linn., 19-Syn-genesia 1-Æqualis.)

Half-hardy evergreen. Sandy loam; cuttings; temp. not below 35° in winter.

A. ageratoides (ageratum-like). White. July. Spain. 1824.

ALO'NA. (Letters of the primitive name, *Nolana*, transposed from *Nola*, a little bell; in reference to the form of the flowers. Nat. ord., *Nolanads* [Nolanaceæ]. Linn., 5-Pentandria 1-Monogynia.)

A small order of pretty Chilian half-shrubby greenhouse evergreens, with large flowers; cuttings root freely in sandy loam; peat and loam.

A. bacca'ta (berry-bearing). Yellow. Coquimbo.

— *caelestis* (sky-blue). 2. Blue. Chili. 1845.

— *carnosa* (fleshy). Blue. Coquimbo.

— *glandulosa* (glandulous). Blue. Valparaiso.

— *longifolia* (long-leaved). Blue. Coquimbo.

— *obtus'a* (blunt-leaved). Blue. July. Coquimbo.

— *revoluta* (rolled-back-leaved). Blue. Peru.

— *rostrata* (beaked). Blue. July. Coquimbo.

— *tomentosa* (white-downed). White. Valparaiso.

ALONSO'A. (In honour of *Z. Alonzo*, a Spaniard. Nat. ord., *Figworts*. Allied to *Hemimeris* [Scrophulariaceæ]. Linn., 14-Didynamia 2-Angiospermia.)

Greenhouse evergreens, except *A. caulilata*, which is a half-hardy herbaceous. Rich mould; cuttings, or seeds, the first in sandy loam in August or March; the seeds in March in gentle heat.

A. acutifolia (acute-leaved). S. Scarlet. June. Peru. 1790.

A. caulilata (wing-stemmed). 3. Scarlet. June. Chili. 1823.

— *incisifolia* (cut-leaved). 2. Scarlet. June. Chili. 1795.

— *intermedia* (intermediate). 2. Scarlet. June. Hybrid.

— *linearis* (linear-leaved). 2. Scarlet. June. Peru. 1790.

ALOY'SIA. Sweet-scented Verbena. (In honour of *Maria Louisa*, Queen of Spain. Nat. ord., *Verbenas* [Verbenaceæ]. Linn., 14-Didynamia 3-Angiospermia.)

Greenhouse deciduous shrub. Rich mould; cuttings in sandy soil of the old stem, or young shoots; if the latter, shade; August and March best times.

A. citrifolia (lemon-scented). 3. Pale purple. August. Chili. 1844.

ALP'INES, strictly speaking, are plants from alpine, that is, mountainous districts, usually requiring the protection of a frame in winter, because we cannot secure to them their natural covering of snow during that season. Gardeners, however, include in their lists of Alpines a great diversity of small plants, difficult of cultivation. They are best grown in pots, and require light sandy loam and peat, with abundant drainage.

ALP'INIA. (In honour of *Alpini*, an Italian botanist. Nat. ord., *Gingerworts* [Zingiberaceæ]. Linn., 1-Monandria 1-Monogynia.)

Stove herbaceous perennials, except *A. penicillata*, which is a greenhouse plant. Rich sandy soil and peat. They like much moisture and pot-room in the growing season; root division in moist soil.

A. Allu'gahs (Allu'gahs). 2. Red. February. E. Ind. 1796.

— *Antillarum* (Antilles). 4. Flesh. May. W. Ind. 1826.

— *auriculata* (eared). 5. Reddish-yellow. E. Ind. 1814.

— *bracteata* (bracted). 3. White. May. E. Ind. 1824.

— *calcarata* (spur-flowered). 3. White. September. E. Ind. 1800.

— *Cardamomum* (Cardamom). 8. White. August. E. Ind. 1815.

— *cermua* (drooping). 6. Pink. April. E. Ind. 1804.

— *como'sa* (tufted-spiked). 1. White. May. Caraccas. 1752.

— *diffissa* (two-cleft). 6. Purple-blue, yellow. April. E. Ind. 1818.

— *exaltata* (lofty). 20. Red, yellow. Surinam. 1820.

— *Gala'nga* (Galanga). 6. White, yellow. October. E. Ind.

— *linguaeforrmis* (tongue-formed). 6. Red. July. E. Ind. 1820.

— *magnifica* (magnificent). 10. Red. July. Mauritius. 1830.

— *Malaccensis* (Malayan). 5. White. April. E. Ind. 1799.

— *media* (mediate). 6. Red. July. E. Ind. 1815.

— *mutica* (spurless). 5. White. August. E. Ind. 1811.

A. nutans (nodding). 13. Pink. May. E. Ind. 1792.

— *occidentalis* (western). 6. White. July. Jamaica. 1793.

— *penicillata* (pencilled). 3. Pink. May. China.

— *punctata* (scarlet). 6. Scarlet. June. E. Ind. 1820.

— *racemosa* (branchy). 5. White. August. W. Ind. 1752.

— *Roscoeana* (Roscoe's). 3. Red. May. E. Ind. 1823.

— *spicata* (spiked). 2. Sumatra. 1822.

— *striata* (streaked). 4. E. Ind. 1818.

— *tubulata* (tubular). 2. Red. July. Demerara. 1820.

ALSTINE. Chickweed. (From *alsos*, a grove; in reference to the situation preferred by these plants. Nat. ord., *Clovesworts* [Caryophyllaceæ]. Linn., 5-Pentandria 3-Trigynia.)

Hardy annuals. Seed; common loam.

A. laricifolia (larch-leaved). ♀. Siberia. 1834.

This is perennial; root division.

— *molluginæa* (mollugo-like). ♀. White. July. Spain. 1816.

— *mucronata* (spine-pointed-leaved). 1. White. July. South of Europe. 1777.

— *pubescens* (downy). ♀. White. July. 1810.

— *segetalis* (sedge-like). 1. White. July. France. 1805.

ALSODEIA. (From *alsodes*, leafy. Nat. ord., *Violetworts* [Violaceæ]. Linn., 5-Pentandria 1-Monogynia.)

Stove evergreen shrubs. Loam and peat; cuttings in sand, under a bell-glass.

A. latifolia (broad-leaved). White. Madagascar. 1824.

— *pauciflora* (few-flowered). White. Madagascar. 1824.

ALSO'PHILA. (From *alsos*, a grove, and *phileo*, to love; in reference to the situation best suited for the plants. Nat. ord., *Ferns* [Polypodiaceæ]. Linn., 24-Cryptogamia 1-Filices.)

Greenhouse herbaceous Fern. Peat and loam; division.

A. Australis (Australian). Brown. N. Holland. 1833.

ALSTONIA. (In honour of Dr. Alston. Nat. ord., *Storaxworts* [Styracaceæ]. Linn., 5-Pentandria 1-Monogynia.)

The leaves of *Alstonia* are slightly astringent, and are used as tea. Stove evergreen shrubs, allied to the Oleander. Sandy loam and peat; cuttings root readily in moist bottom-heat. Winter temp., 50° to 55°; summer, 60° to 75°.

A. scholaris (oleander-leaved). 8. White. May. E. Ind. 1825.

— *venenata* (poisonous). 6. White. June. E. Ind. 1825.

ALSTRÖMERIA. (In honour of Baron Alströmer, a Swedish botanist. Nat. ord., *Amaryllids* [Amaryllidaceæ]. Linn., 6-Hexandria 1-Monogynia.)

All the species of this beautiful genus live out of doors with us, with a slight protection from

frost, except *A. caryophyllæa*, erroneously called *ligtu*; and this requires stove heat and absolute rest in winter. All the species, also, have one uniform mode of upright growth, by which they are easily distinguished from *Bomarea's*, the species of which are all twiners. The golden Alströmer from Chiloe (*A. aurea*), is perfectly hardy in England, and prefers a damp situation and strong loam; the other species are chiefly from the alpine regions of Chili, and require free air and lighter soil—their long fascicled (or bundled) roots are not well adapted for pot cultivation. They succeed in deep, rich, light loam, or loam, peat, and sand, and should be planted eight or ten inches deep, and receive abundance of water while they are growing. Alströmers have a strong natural tendency to variation, but will not cross with *Bomarea's*, as has been asserted. No limits can be assigned between species and varieties in this family; a race of endless variations has been obtained from *A. Hookeria* by the pollen of *A. Hæmantha* and its varieties. These are called *Van Houtte's seedlings*. The following are the most distinct forms of the genus in our gardens; but many more are recorded and described, which remain to be introduced:—

A. aurea, syn. *aurantiaca* (golden). 2. June. Orange. Chili. 1831.

— *Cummingia* (Cumming's). Chili.

— *caryophyllæa*, syn. *ligtu* (clove-like scent). 1. February. Scarlet. Brazil. 1776.

— *hæmantha*, var. *Barclæya* (blood-coloured). 2½. July. Crimson. Chili. 1830.

— *Hookeria*, syn. *rosea* (Dr. Hooker's). 3. June. Pink. Chili. 1834.

— *ligtu*. See *Caryophyllæa*. The true *ligtu* is not introduced.

— *Neillii* (Neil's). 2. June. Pink. Chili. 1827.

— *pelegriana* (spot-flowered). 1. July. Striped. Chili. 1754.

— *psittacina* (parrot-like). September. Crimson. Brazil. 1829.

— *pulchella*. See *Simsii*.

— *pulchra*, syn. *Flos Martini*; syn. *tricolor* (fair). 1½. June. White, purple, and yellow. Chili. 1822.

— *Simsii*, syn. *pulchella* (Sims's). 3. June. Scarlet. Chili. 1822.

ALTERNANTHERA. (Alluding to the anthers being alternately barren. Nat. ord., *Amaranths* [Amarantaceæ]. Linn., 5-Pentandria 1-Monogynia.)

Chiefly stove herbaceous perennials. Cuttings root readily in common hotbed heat; light, rich loam.

A. achyrantha (chaff-flowered). 1. White. July. Buenos Ayres. 1732.

— *cane-scens* (hoary). 1. White. July. Cumana. 1825.

— *Caracasana* (Caracas). 1. White. July. Caracas. 1819.

— *denticulata* (finely-toothed-leaved). White. July. 1822.

— *filiformis* (thread-shaped). White. July. E. Ind.

— *frutescens* (shrubby). 1. White. July. Peru. 1820. This will do in a greenhouse.

— *nodiflora* (knot-flowered). White. May. N. Holland. 1826.

— *polygonoides* (polygonum-like). 1. White. July. America. 1731.

- A. procumbens* (procumbent). 4. White. July. Brazil. 1818.
 — *sericea* (silky). 2. White. July. Quito. 1820.
 — *sessile* (stalkless). 3. July. Brown. E. Ind. 1778. A biennial.
 — *spinosa* (spinous). Yellow. June. 1823. Stove annual.

ALTHEA. Mallow. (From *altheo*, to cure; in reference to the medicinal qualities. Nat. ord., *Mallowworts* [Malvaceæ]. Linn., 16-Monadelphia 8-Polyandria.)

The biennials and annuals sow in spring; the herbaceous dividing the roots, or seeds, which, sown as soon as ripe, produce flowering plants next year. *A. rosea* is the Hollyhock.

HARDY ANNUALS.

- A. acutis* (stemless). 2. Purple. July. Aleppo. 1680.
 — *hirsuta* (hairy). 2. White. July. Britain.
 — *Ludwigii* (Ludwig's). 2. Pink. July. Sicily. 1791.
 — *Chinensis* (China). 1. Red. July. China. 1818.

HARDY BIENNIALS.

- A. Caribæa* (Caribbean). 3. Pink. Stove. April. W. Ind. 1816.
 — *ficifolia* (fig-leaved). 6. Orange. July. Levant. 1597.
 — *Frolovia* (Frolove's). 3. July. Siberia. 1827.
 — *pallida* (pale-flowered). 6. Pale red. July. Hungary. 1805.
 — *rosea* (the hollyhock). Red. August. China. 1573.
 — *biloba* (two-lobed H.). 8. Red. July.
 — *Sieberi* (Sieber's). 4. Purple. July. Sicily. 1829.
 — *striata* (streaked). 5. White. July.

HARDY HERBACEOUS.

- A. cannabina* (hemp-leaved). 6. Purple. July. South of Europe. 1597.
 — *flexuosa* (zigzag). 3. Pink. July. E. Ind. 1803.
 — *Narbonensis* (Narbonne). 6. Pink. August. South of Europe. 1780.
 — *nudiflora* (naked-flowered). 6. White. July. Siberia. 1827.
 — *officinalis* (official. Marsh-mallow). 4. Flesh. July. Britain.
 — *Taurinensis* (Turin). 4. Red. August. Turin. 1817.

ALTINGIA. (In honour of *Alting*, a German botanist. Nat. ord., *Conifers* [Pinaceæ]. Linn., 22-Diæcia 13-Monadelphia.)

Greenhouse evergreens. Allied to *Araucaria*. Deep loamy soil. The best plants are from seeds, although they may be raised from cuttings of the half-ripened wood, under a bell-glass, in a cold frame.

- A. Cunninghamii* (Cunningham's). 30. Apetal. N. Holland. 1824.
 — *exelsa* (tall). 100. Apetal. Norfolk Island. 1796.

ALTITUDE, or elevation above the sea, has a great influence over vegetation. The greater the altitude the greater the reduction of temperature; so much so that every 600 feet of altitude are believed to reduce the annual temperature as much as receding a degree from the equator, either to the north or to the

south. But this rule is far from universally applicable; for the limit of perpetual snow at the equator is at the height of 15,000 feet; whereas, in the 35th degree of north latitude, the limit is at 11,000 feet, being an average of about 120 feet of altitude for every degree of recession from the equator. In the 45th degree, the limit is 8,400 feet, being an average of 146 feet for every degree; in the 50th degree, 6,000 feet, or 180 feet for each degree; in the 60th, 3,000 feet, or 200 feet for a degree; and in the 70th, from 1,200 to 2,000 feet, or about the same for each degree as to the 60th degree of latitude. Now we know of no reason why the temperature of elevations below the snow-line should not follow the same gradations; and if this be so, these may be taken as a rule. All plants growing above 7,000 feet under the equator ought to grow in the open air, in the latitude of London. In general, good vegetation is produced at the same distance from the snow-line in the same latitudes.

ALUMINOUS, applied to land, means heavy, owing to the presence of clay.

ALYSSUM. Madwort. (From *a*, not, and *lyssa*, rage; in reference to a fable that the plant allayed anger. Nat. ord., *Crucifers* [Brassicaceæ]. Linn., 15-Tetradynamia.)

Seeds, cuttings, and root divisions; common soil. Mostly yellow-flowered and hardy. The best plants of the shrubs are from cuttings in April and May, and struck in a hotbed. They flower next year. The *saxatile* is the best yellow, and for scent none surpass the white sweet alyssum of the gardens, which will sow itself in the ground, and may be sowed several times during the summer, by the side of borders, like the Virginia stock. The evergreen shrubs, as they are called, more resemble herbaceous plants, they are so lowly in their growth. They are best propagated by cuttings of the points of the shoots, two or three inches in length, inserted in sandy loam, early in the season, and in a shady place. *Variegatum* is a little tender. Though all grow freely in common soil, yet to have them in perfection they should be used as rock or hill-lock plants. Even when planted in the border they succeed best when planted in little mounds. The *variegatum* makes a fine edging to any brilliant-coloured bed.

EVERGREEN SHRUBS.

- A. Atlanticum* (Atlantic). 1. April. Crete. 1817.
 — *Gemonense* (German). 1. April. Europe.
 — *obtusifolium* (blunt-leaved). 1. April. Tauria. 1828.
 — *orientale* (eastern). 1. April. Crete.
 — *variegatum* (variegated-leaved). April. Gardens.
 — *saxatile* (rock). 1. June. Candia. 1710.

- A. serpyllifolium* (thyme-leaved). 1. August. South of Europe. 1822.
 — *spatulatum* (spatulate). 1. April. Siberia. 1818.
 — *vernale* (vernal). 1. June. 1819.

ANNUALS.

- A. hirsutum* (hairy). 1. June. Tauria. 1817.
 — *umbellatum* (umbellate). 1. July. Tauria. 1821.

HERBACEOUS PERENNIALS.

- A. alpestre* (alpine). 1. June. South of Europe. 1825.
 — *argenteum* (silvery). 1. April. Switzerland.
 — *Bertoloni* (Bertoloni's). 1. July. Switzerland. 1823.
 — *cuneifolium* (wedge-leaved). 1. July. Italy. 1820.
 — *diffusum* (spreading). 1. July. Italy. 1820.
 — *Marschallianum* (Marschall's). 1. April. Caucasus. 1820.
 — *micranthum* (small-flowered). 1. August. Russia. 1836.
 — *montanum* (mountain). 1. June. Germany. 1713.
 — *muralis* (wall). 1. July. Hungary. 1820.
 — *olympicum* (olympic). 1. June. 1700.
 — *procumbens* (trailing).
 — *rotundifolium* (twisted). 1. April. Hungary. 1804.
 — *Warschallidii* (Warschall's). June. Yellow. South of Europe. 1847.
 — *Wulfenianum* (Wulfen's). 1. April. Carinthia. 1819.

ALZATEA. (In honour of a Spanish naturalist, named *Alzaty*. Nat. ord., *Spindle-trees* [Celastraceæ]. Linn., 5-Pentandria 1-Monogynia.)

Greenhouse evergreen tree. Cuttings in hot-bed; sandy peat.

- A. verticillata* (verticillate). 20. Peru. 1824.

AMARANTHUS. Amaranth. (From *a*, not, and *mairaino*, to wither; in reference to the durability or "everlasting" quality of the flowers of some species. Nat. ord., *Amaranthus* [Amarantaceæ]. Linn., 21-Monœcia 5-Pentandria.)

Hardy annuals. Rich loam; seeds sown in open ground in March and April.

- A. atropurpureus* (dark purple). 3. Purple. September. E. Ind. 1820.
 — *bicolor* (two-coloured). 2. Red, green. August. E. Ind. 1802.
 — *caudatus* (love-lies-bleeding). 4. Red. August. E. Ind. 1596.
 — *maritimus* (true-love-lies-bleeding). 6. Red. August. 1820.
 — *cruentus* (dark-bloody). 3. Dark red. July. China. 1728.
 — *fasciatus* (banded). 2. July. E. Ind. 1816.
 — *flavus* (yellow). 4. Light yellow. August. India. 1759.
 — *lanceifolius* (lance-leaved). 3. Red. July. E. Ind. 1816.
 — *oleraceus* (pot-herb). 6. Pale red. July. E. Ind. 1764.
 — *sanguineus* (bloody). 3. Red. August. Bahama. 1775.
 — *speciosus* (showy). 6. Red. July. Nepal. 1819.
 — *tricolor* (three-coloured). 2. Red, yellow. August. E. Ind. 1548.

AMARYLLIS. (A classic alname, after Virgil's *Amaryllis*. Nat. ord., *Amaryllids* [Amaryllidaceæ]. Linn., 6-Hexandria 1-Monogynia.)

Half-hardy deciduous bulbs. Ever since the day the great Linnaeus instituted this genus, "with a playful reason assigned," until the whole order was arranged by the late Dean of Manchester, it has been loaded in books with all kinds of allied plants in an interminable confusion. Every hybrid usually arranged in this genus is a *Hippeastrum*; and all which we think necessary to mention will be found under that genus. Plant in light, rich soil, in a sheltered place, well drained, and the bulbs placed at least six inches deep.

- A. Belladonna* (Belladonna-lily). 2. Pale pink. Cape of Good Hope. 1712.
 — *paullida* (pale-flowered). 2. Flesh. August. Cape of Good Hope. 1712.
 — *blanda* (charming). 1½. June. Whitish. Cape of Good Hope. 1754.

These are all that we can arrange in this genus, although we think that *Brunsvigia Josephine* and *B. grandiflora* are true *Amaryllises*, having crossed, or produced fertile seeds, with *Amaryllis blanda*; but, as they are very distinct in the appearance of their leaves and bulbs, no author but Dr. Herbert has yet ventured to unite them with *Amaryllis*. Without aiming at a reform of our botanical classification, we think it desirable to keep *Hippeastrum* apart from *Amaryllis*, on account of the opposite habits of the bulbs of the two genera, those of the *Amaryllis* growing only late in the autumn, and through the winter in Europe; while those of *Hippeastrum* are under the gardener's control, and may be managed to grow at different periods. Our great aim should be to get crosses between *Amaryllis* and *Valotta*. Thus reduced, *Amaryllis* would turn evergreen, or at least produce leaves and flowers simultaneously. All bulbs which flower without their leaves are objectionable.

AMASONIA. (In honour of an American traveller, named *Amason*. Nat. ord., *Verbenas* [Verbenaceæ]. Linn., 14-Didynamia 2-Angiospermia.)

Stove herbaceous perennials. Sandy loam; suckers.

- A. erecta* (upright). 2. Yellow. September. Maranhao. 1823.
 — *punctata* (scarlet). 2. Yellow. September. Trinidad. 1825.

AMATEUR. As the true qualification of an amateur sometimes is questioned at local horticultural shows, we give our definition. We consider that person is an amateur who has a taste for a pursuit (floriculture, or horticulture, for instance,) but who neither follows it as a profession, nor for pecuniary advantage.

A'MBURY is a disease peculiar to the Cabbageworts, and is known by the various names of *Hunbury*, *Anbury*, and *Club Root*. *Fingers and Toes*, a name applied to it in some parts, alludes to the swollen state of the small roots of the affected plants.

Cabbage-plants are frequently infested with ambury in the seed-bed, which infection appears in the form of a gall or wart on the stem near the roots. This wart contains a small white maggot, the larva of a little insect called the weevil. If on the gall and its tenant being removed, the plant is again placed in the earth, where it is to remain, unless it is again attacked, the wound usually heals, and the growth is little retarded. On the other hand, if the gall is left undisturbed, the maggot continues to feed upon the alburnum, or young woody part of the stem, until the period arrives for its passing into the other insect form, previously to which it gnaws its way out through the exterior bark. The disease is now almost beyond the power of remedies. The gall, increased in size, encircles the whole stem; the alburnum being so extensively destroyed, prevents the sap ascending; consequently, in dry weather, sufficient moisture is not supplied from the roots to counterbalance the transpiration of the leaves, and the diseased plant is very discernible among its healthy companions by its pallid hue and flagging foliage. The disease now makes rapid progress, the swelling continues to increase, for the roots continue to afford their juices faster than they can be conveyed away; moisture and air are admitted to the interior of the excrescence, through the perforation made by the maggot; the wounded vessels ulcerate, putrefaction supervenes, and death concludes the stunted existence of the miserable plant. The tumour usually attains the size of a large hen's egg, has a rugged, ulcerated, and even mouldy surface, smelling strong and offensively. The fibrous roots, besides being generally thickened, are distorted and monstrous from swellings which appear throughout their length, apparently arising from an effort of nature to form receptacles for the sap. These swellings do not seem to arise immediately from the attacks of the weevil. When it attacks the turnip, a large excrescence appears below the bulb, growing to the size of both hands, and, as soon as the winter sets in, it is, by its own nature, brought to maturity, becoming putrid, and smelling very offensively. The parent weevil is of a dusky-black colour, with the breast spotted with white, and the length of the body one line and two-thirds. The ambury of the

turnip and cabbage usually attacks these crops when grown for successive years on the same soil. This is precisely what might be expected; for, where the parent insect always deposits her eggs, some of these embryo ravages are to be expected. The ambury is most frequently observed in dry seasons. This is also what might be anticipated; for insects that inhabit the earth just beneath its surface are always restricted and checked in their movements by its abounding in moisture. Moreover, the plants actually affected by the ambury are more able to contend against the injury inflicted by the larva of the weevil by the same copious supply. Charcoal-dust, spread about half-an-inch deep upon the surface, and just mixed with it by the point of a spade, it is said, prevents the occurrence of this disease. Soot, we have reason to believe, from a slight experience, is as effectual as charcoal-dust. Judging from theoretical reasons, we might conclude that it would be more specific; for, in addition to its being, like charcoal, finely divided carbon, it contains sulphur, to which insects also have an antipathy. A slight dressing of the surface-soil with a little of the dry hydro-sulphuret of lime from the gas-works would prevent the occurrence of the disease, by driving the weevils from the soil. It would probably as effectually banish the turnip fly or beetle, if sprinkled over the surface immediately after the seed is sown. For cabbages, twelve bushels per acre would not, probably, be too much, spread upon the surface, and turned in with the spade or last ploughing. To effect the banishment of the turnip-beetle, we should like a trial to be made of six or eight bushels spread over the surface immediately after the sowing and rolling are finished. Although we specify these quantities as those we calculate most correct, yet in all experiments it is best to try various proportions. Three or four bushels may be found sufficient; perhaps twelve, or even twenty, may not be too much. In cabbages, the ambury may usually be avoided by frequent transplantings; for this enables the workman to remove the excrescences upon their first appearance, and renders the plants altogether more robust and ligneous; the plant in its tender, sappy stage of growth being most open to the insect's attacks.

AMELA'NCHIER. (This is the Savoy

name for the Medlar, to which this genus is closely allied. Nat. ord., *Appieworts* [*Pomaceæ*]. Linn., 12-*Icosandria* 2-*Pentagynia*.)

Hardy deciduous shrubs, closely allied to the Medlar. Layers; common rich loam. Small trees cultivated for their showy white flowers, which are produced early in the season. They are also propagated by grafting on the hawthorn, or on the quince.

A. botrya'pium (grape-pear). 12. N. Amer. 1746.

— *flor'ida* (flowery). 12. N. Amer. 1826.

— — *parviflor'ia* (small-leaved). 3.

— *ova'lis* (oval-leaved). 8. N. Amer. 1800.

— *semi-integriflor'ia* (half-entire-leaved). N. Amer.

— — *subcorda'ta* (subcordate-leaved). N. Amer.

— *sangu'nea* (bloody). 4. N. Amer. 1800.

— *vulgar'is* (common). 6. South of Europe. 1596.

AME'LLUS. (A name employed by Virgil for a blue aster-looking plant growing on the banks of the river *Mella*. Nat. ord., *Compositæ* [*Asteraceæ*]. Linn., 19-*Syngenesia* 2-*Superflua*.)

Allied to Aster. The first is a greenhouse evergreen shrub, and the other two hardy herbaceous perennials. Loamy soil; cuttings.

A. lychni'tis (lychnitis). 1. Violet. July. Cape of Good Hope. 1768.

— *spinulo'sus* (spinulose). 2. Yellow. August. Missouri. 1811.

— *villo'sus* (long-haired). 1. Yellow. August. Missouri. 1811.

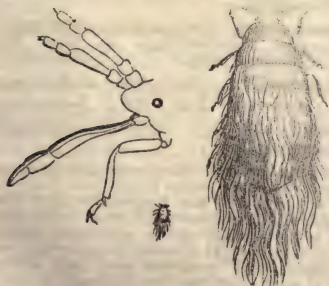
AMERICAN ALOE. *Agave America'na*.

AMERICAN BLIGHT. The insect attacking our apple-trees, and known by this name, is the *Eriosoma lanigera* of some entomologists, and *E. mali* and *Aphis lanigera* of others. Its generic characters are, having an abdomen (belly) without tubercles, antennæ, or horns, short and thread form, and the whole body more or less cottony or tomentose. The presence of these insects is shown by the white cottony matter in the cracks and excre-

reddish fluid. These insects are injurious by piercing the sap-vessels of the tree, sucking the juice, and causing wounds which ulcerate, and finally destroy, the branch attacked, by corroding through all the sap-vessels. The cottony matter is abundant; and, wafted to other trees, conveys to them infection by bearing with it the eggs or embryo insects. Such, however, is not the exclusive mode of diffusing the disease; for, although the females are usually wingless, yet some are probably produced with wings at the season propitious to colonization: the males are uniformly winged. In the winter these insects retire underground, and prey upon the roots of the apple-tree. A tree thus ravaged at all seasons will soon be killed, if prompt and vigorous remedies are not adopted. The affected roots may be bared and left exposed for a few days to the cold, and the earth, before being returned, be saturated with ammoniacal liquor from the gas-works. In early March the branches should be scraped and scrubbed with the same ammoniacal liquid, or a strong brine of common salt; but, whatever liquid is employed, the scraping and hard bristles of the brush should penetrate every crack in the bark. We have found spirit of turpentine, applied thoroughly to every patch of the insect by means of an old tooth-brush, the most effective destroyer of these insects. The spirit must be applied carefully, because it kills every leaf on which it falls. The codlin and June eating-apple trees are particularly liable to be infected; but we never observed it upon any one of the russet apples; and the Crofton pippin is also said to be exempted. Our woodcut represents the insect of its natural size as well as magnified. The head, antennæ, and proboscis, by which it wounds the sap-vessels, are still further magnified.

AMERICAN COWSLIP. *Dodeca'theon*.

AMERICAN CRANBERRY. *Oxyco'ccus macroca'rpus*. Soil light, and occasionally manured with rotten leaves. Peat has been considered indispensable by some cultivators; but we much question whether this be not a mistaken impression, and should not be allowed to deter persons from planting in any ordinary dark vegetable matters, soft alluvium, or humus which may happen to be within reach. On making an artificial compost, we would advise one-third peaty or other



scences of apple-tree branches in the spring. When crushed they extrude a

dark and unctuous material, one-third leaf-soil, or old decayed weeds, and one-third light and sandy loam or ordinary soil. *Situation*: It requires a constant supply of water; and, on a south bank, where this supply can be obtained, it may be planted in rows four feet apart each way, and the water made to circulate in a small ditch between the rows. But the edge of a pond will suit it almost as well, provided that a little soil of a proper character is introduced round the margin. It is well to state, however, that a very considerable amount of success has been attained in beds of a peaty character, without any system of irrigation. *After-culture*: The shrubs require no other attention than to be kept free from weeds. A top-dressing annually, in November, of heath-soil or rotten leaves has been stated to prove of much service. The American cranberry is considered of easier culture than the English, or *Oxycoccus palustris*, the latter requiring more moisture than the American. *Produce*: The fruit, used for tarts and preserving, is so abundant, that a bed six yards long is sufficient for the largest family. *Propagation*: Suckers, cuttings, or seeds; the two former planted early in the autumn.

AMERICAN CRESS. *Barbærea precox*. *Soil and Situation*: For the winter standing crops, a light, dry soil, in an open but warm situation; and, for the summer, a rather moister and shady border—in neither instance rich. Sow every six weeks from March to August, for summer and autumn; and one sowing, either at the end of August or beginning of September, for a supply during winter and spring. Sow in drills nine inches apart. *Culture*: Water occasionally during dry weather, both before and after the appearance of the plants. Thin to three inches apart. In winter, shelter with a little litter or other light covering, supported by some twigs bent over the bed, or some bushy branches laid among the plants; keep clear of weeds. In gathering, strip off the outside leaves, which enables successional crops to become rapidly fit for use. When the plants begin to run, their centres must be cut away which causes them to shoot afresh. *To obtain Seed*, a few of the strongest plants, raised from the first spring sowing, are left ungathered from. They flower in June or July, and perfect

their seed before the commencement of autumn.

AMERICAN PLANTS. These comprise many very different species, which, resembling each other in requiring a well-drained, peaty soil and abundance of water, are usually cultivated in a separate department, where the garden-establishment is extensive; and, wherever grown, should have a compartment to themselves, a very acutely sloping bank, facing the north or east; and some of them—as the Rhododendron, Andromeda, and Azalea—do not object to being overshadowed by trees. The soil, as already stated, should, if possible, be peaty; and the best annual dressings that can be applied are such matters as decayed leaves and the bottom of old wood-stacks, or any other mixture of decayed woody fibre; and, in fact, these tribes in general have been well grown in an artificially-compounded soil, such as rotten leaves, old and spent tan, or sawdust, and ordinary light soil, with some sand, using twice as much of the vegetable matter as of the others. A covering of moss, also, will be beneficial.

AMERIMNUM. (From *a*, not, and *merimna*, care; in reference to the little care needed by the Houseleek, to which this name was applied by the Greeks. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 16-Monadelphica 9-Decandria.)

Stove evergreen shrubs. Cuttings of the young shoots in sand and gentle heat; rich loam.

A. Bro'unei (Brown's). 10. White. W. Ind.

1793.

—*strigulosum* (strigulose). 20. White. Trinidad. 1817.

AMETHYSTEA. (From *amethystos*, the amethyst; in reference to the blue colour of the flower. Nat. ord., *Labiates*, or *Lip-worts* [Lamiaceæ]. Linn., 10-Decandria 1-Monogynia.)

Hardy annual. Seed; peat and sandy loam.

A. carulea (blue-flowering). 2. Blue. July. Siberia. 1759.

AMHERSTIA. (In honour of the Countess Amherst. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 17-Diadelpheia 1-Triandria.)

Allied to *Jonesia*. This splendid flowering tree, "the cream of the Indian Flora," was first flowered in England, by Mrs. Lawrence, in 1849. The individual flowers sustain the praise lavished on this tree; but they are so ephemeral, lasting hardly three days, as to render its cultivation less desirable. Stove evergreen tree. Rich, strong loam; cuttings of half-ripened wood, in sand, under a bell-glass, in heat.

A. nobilis (noble). 40. Rich vermilion. E. Ind. 1837.

AM'ICIA. (In honour of *B. Amici*, physician. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 17-*Monadelphia* 3-*Hexandria*.)

Stove evergreen climber. Rough sandy loam; cuttings in sand, under a bell-glass.

A. zigomeris (two-jointed-podded). 8. Yellow. June. Mexico. 1826.

AMIA'NTHIUM. See **HELO'NIAS.**

AMMO'BIUM. (From *amos*, sand, and *bio*, to live; in reference to the sandy soil in which it thrives. Nat. ord., *Composites* [Asteraceæ]. Linn., 10-*Syngenesia* 1-*Æqualis*.)

Half-hardy herbaceous perennials. Cuttings and seed; common soil.

A. ala'tum (winged). 2. White. June. N. Holland. 1822.

— *plantagin'eum* (plantain-leaved). 1. White. August. N. Holland. 1827.

AMMO'CHARIS. See **BRUNSVI'GIA.**

AMMODE'NDRON. (From *amos*, sand, and *dendron*, a tree; in reference to the situation it grows in. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 10-*Decandria* 1-*Monogynia*.)

A hardy evergreen tree. Allied to *Sophora*.

A. Sieber'sii (Siever's). 4. Purple. June. Siberia. 1837.

AMMOGE'TON. (From *amos*, sand, and *geton*, near; the situation it likes. Nat. ord., *Composites* [Asteraceæ]. Linn., 19-*Syngenesia* 1-*Æqualis*.)

Hardy herbaceous perennial. Root division; sandy loam.

A. scorzon'erifo'llium (scorzonera-leaved). Yellow. May. N. Amer. 1834.

AMMY'RSINE. (From *amos*, sand, and *myrsine*, myrtle. Nat. ord., *Heathworts* [Ericaceæ]. Linn., 10-*Decandria* 1-*Monogynia*.)

Hardy evergreen shrubs, allied to *Ledum*, but requiring slight protection in winter. Peat; layers. This genus should be united to *Leio-phyllum*.

A. buxifo'lia (box-leaved). 1. White. May. N. Amer. 1736.

— *prostra'ta* (flat-lying). White. June. N. Amer.

AMO'MUM. (From *a*, not, and *mos*, impurity; in reference to the quality of counteracting poison. Nat. ord., *Gingerworts* [Zingiberaceæ]. Linn., 1-*Monandria* 1-*Monogynia*.)

Grains of paradise, acrid seeds used to give pungent flavour to liquors, belong to different species of *Amomum*. Being aromatic herbs, they were used in embalming; whence the word *mummy*. Stove herbaceous perennials. Root division; rich, light loam; require, when growing, a high, moist heat.

A. aculea'tum (prickly). 10. Orange. May. E. Ind. 1819.

A. Afzelii (Afzelius's). 3. Pink. May. Sierra Leone. 1795.

— *angustifo'llium* (narrow-leaved). 8. Red. June. Madagascar.

— *aroma'ticum* (aromatic). 3. Purplish-yellow. June. E. Ind. 1823.

— *cardamo'mum* (small cardamom). 4. Pale brown. June. E. Ind. 1823.

— *Daniel'li* (bastard melligetta). 2½. Red. W. Africa.

— *dealida'tum* (whitened). 3. White. April. Bengal. 1819.

— *gra'na paradi'si* (grain of paradise). 3. Red. March. Madagascar.

— *grandifo'rum* (large-flowered). 3. White. July. Sierra Leone. 1795.

— *latifo'llium* (broad-leaved). 4. Purplish-yellow. June. Sierra Leone. 1824.

— *ma'ximum* (greatest). 6. White. June. E. Ind.

— *seri'ceum* (silky). 6. White. July. E. Ind. 1819.

— *subula'tum* (awl-shaped). 3. Yellow. April. Bengal. 1822.

— *syloc'stre* (wood). 1. White. April. W. Ind. 1819.

AMOO'RA. (Nat. ord., *Meliads* [Meliaceæ]. Linn., 6-*Hexandria* 3-*Trigynia*.)

Stove evergreen shrub. Cuttings in sand, under bell-glass, in a hotbed; soil, light, rich loam.

A. cuculla'ta (cow-leaved). Yellow. May. N. Amer. 1834.

AMO'RPHA. Bastard Indigo. (From *a*, not, and *morpha*, form; in reference to the irregularity of the flowers. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 16-*Monadelphia* 6-*Decandria*.)

Hardy deciduous shrubs. Common soil; layers, or cuttings of the ripe wood in autumn.

A. cane'scens (hoary). 3. Blue. July. Missouri. 1812.

— *cro'ceo-lana'ta* (yellow-woolled). 5. Purple. July. N. Amer. 1820.

— *fra'grans* (fragrant). 3. Purple. July. N. Amer. 1800.

— *frutico'sa* (shrubby). 6. Purple. July. Carolina. 1724.

— — *angustifo'lia* (narrow-leaved). 9. Purple. June. South Carolina. 1812.

— — *cæru'lea* (blue). 9. Blue. June. South Carolina.

— — *emargina'ta* (emarginate-leaved). 6. Purple. July. Carolina. 1724.

— — *microphy'lla* (small-leaved). 2. Purple. June. Carolina.

— *glab'ra* (smooth). 3. Purple. July. N. Amer. 1818.

— *herba'cea* (herbaceous). 3. Blue. July. Carolina. 1803.

— *Lewis'sii* (Lewis's). 3. Purple. July. N. Amer. 1818.

— *microphy'lla* (small-leaved). 2. Purple. August. Missouri. 1811.

— *na'na* (dwarf). 2. Blue. August. Missouri. 1811. These last four require a little protection in winter.

AMPELO'PSIS. (From *ampelos*, a vine, and *opsis*, resemblance; in reference to its resemblance to the grape-vine. Nat. ord., *Vineworts* [Vitaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*.)

Loudon said *A. hederacea* is "the most vigorous-growing climber in Europe. It thrives in almost every soil and situation, from Warsaw to Naples." Hardy deciduous climbers; all their flowers purple and green. Common soil; layers or cuttings.

A. bipinnata (double-winged). 15. August. N. Amer. 1700.

— *cordata* (heart-leaved). 20. May. N. Amer. 1803.

— *hederaea* (Virginian creeper). 60. July. N. Amer.

— *hirsuta* (hairy). 60. May. N. Amer. 1806.

AMPELY'GONUM. (From *ampelos*, a vine, and *gonu*, a joint; referring to its stems. Nat. ord., *Buckwheats* [Polygonaceæ]. Linn., 8-Octandria 3-Trigynia.)

Greenhouse herbaceous perennial. Sandy loam and a little peat; seeds.

A. Chinaense (Chinese). Yellowish-white. July. E. Ind. 1837.

AMPHERE'PHIS. (From *ampherephes*, well-covered; alluding to the double involucre. Nat. ord., *Composites* [Composite]. Linn., 19-Syngenesia 1-Æqualis.)

Hardy annuals, with purple flowers. Sandy loam; seeds.

A. aristata (awned). 1. Purple. July. Caraccas. 1824.

— *intermedia* (intermediate). 1½. Purple. August. Brazil. 1821.

— *mutica* (awnless). 1. Purple. July. S. Amer. 1803.

AMPHICARPE'A. (From *amphi*, around, or on either side, and *karpós*, fruit; in reference to the plant bearing pods on the stem and on the shoots. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 17-Didelphia 4-Decandria.)

Ornamental twining, hardy annual plants; allied to *Wistaria*; readily increased by seeds, in common soil.

A. monoica (monoicus). 4. September. N. Amer. 1781.

— *sarmentosa* (twiggy). 2. September. N. Amer. 1820.

AMPHI'COMA. (From *amphi*, around, and *kome*, hair; in reference to the winged seed. Nat. ord., *Bignoniads* [Bignoniaceæ]. Linn., 14-Didynamia 2-Angiospermia.)

A pretty half-hardy evergreen, not unlike a *Pentstemon*. It may be increased by seeds, or by cuttings, which root readily in sandy peat, in July, if placed under glass.

A. arguta (finely-cut). 1. Lilac. August. Himalaya Mountains.

AMPHILO'BUM. (From *amphi*, round, and *lobos*, a pod; in reference to the shape of the seed-vessel. Nat. ord., *Bignoniads* [Bignoniaceæ]. Linn., 14-Didynamia 2-Angiospermia.)

A handsome evergreen climber, requiring the same treatment as *Bignonia*. Cuttings root

readily under glass, on bottom-heat, in the spring months. Soil, loam and peat.

A. paniculatum (panicked). 20. Purple. W. Ind. 1738.

AMSO'NIA. (In honour of *Charles Amson*, a scientific traveller in America. Nat. ord., *Dogbanes*. [Apocynaceæ—Plumiereæ]. Linn., 5-Pentandria 1-Monogynia.)

Allied to *Plumieria*. These are handsome herbaceous perennials, with blue flowers, and will grow in any garden-soil; rooting readily from cuttings during the summer months, or they may be divided at the root at any season.

A. angustifolia (narrow-leaved). 2. N. Amer. 1774.

— *latifolia* (broad-leaved). 2. N. Amer. 1759.

— *salicifolia* (willow-leaved). 2. N. Amer. 1812.

AMYGDALUS. (From *amysso*, to lacerate, in reference to the fissured channels in the stone of the fruit; but some suppose from a Hebrew word signifying *vigilant*, as its early flowers announce the return of spring. Nat. ord., *Almondworts* [Drupaceæ]. Linn., 12-Icosandria 1-Monogynia.)

These are very ornamental plants; the tall tree kinds are very pretty in the middle or back ground of shrubberies; the dwarf kinds, also, as front plants to the same. The true varieties are increased by budding them upon seedling plum-stocks. In the south of France, Italy, Spain, and different parts of the Levant, they are cultivated for their fruit. Almost any soil suits them.

A. Cochinchinensis (Cochin China). Pink. March. Cochinchina. 1825.

— *communis* (common or sweet). 15. Red. April. Barbary. 1548.

— — — *amarra* (bitter). 1. Red. April. Barbary. 1548.

— — — *dulcis* (sweet). 15. Red. March. 1548.

— — — *flore-pleno* (double-blossomed). 15. Red. March. 1548.

— — — *foliis variegatis* (variegated-leaved). 15. Red. March. 1548.

— — — *fragilis* (brittle). 15. Red. April. Barbary. 1548.

— — — *grandiflora rosea* (great-rosy-flowered). 15. Rose. March. 1548.

— — — *macrocarpa* (long-fruited). 15. Red. April. Barbary. 1548.

— — — *persicoides* (peach-like). 15. Red. April. Barbary. 1548.

— — — *pendula* (drooping). 15. White. March. 1548.

— — — *salicifolia* (willow-leaved). 15. White. March. 1548.

— — — *incana* (hoary). 2. Red. April. Caucasus.

— — — *campestris* (field). 2. Red. April. Podolia. 1818.

— — — *Georgica* (Georgian). 3. Red. April. Georgia. 1818.

— — — *orientalis* (eastern). 10. Red. April. Levant. 1756.

— — — *pedunculata* (flower-stalked). 10. Red. April. Levant. 1833.

— — — *pumila* (double-dwarf). 4. Red. April. China. 1683.

— — — *prostrata* (prostrate-growing). 2. Red. April. Crete. 1802.

— — — *Sibirica* (Siberian). 5. Red. April. Siberia. 1820.

A'MYRIS. (From *a*, intensive, and *myrrha*, myrrh; in reference to its powerful perfume. Nat. ord., *Amyrids* [*Amyridaceæ*]. Linn., 8-*Octandria* 1-*Monogynia*.)

This genus is famed for its resinous gum. The species are all ornamental, white-flowered, evergreen stove trees, growing well in loam and peat, and readily increased by cuttings in sand and peat, on bottom-heat, under glass, in the spring months.

A. acuminata (acuminated). 20. E. Ind. 1823.
— *Brazilensis* (Brazilian). 20. August. Brazil. 1823.

— *heptaphylla* (seven-leaved). 16. E. Ind. 1820.
— *Lundni* (Lunan's). 12. July. Jamaica. 1820.
— *maritima* (sea). 12. S. Amer. 1810.
— *nanua* (dwarf). 5. E. Ind. 1822.
— *Plumieri* (Plumier's). 20. W. Ind. 1820.
— *sylobatica* (wood). 16. July. Carthage. 1793.
— *tecocoma* (tecocoma). 20. Mexico. 1827.
— *toxiifera* (poison-bearing). 10. W. Ind. 1818.

ANACAMPSEROS. (From *anakampo*, to cause to return, and *eros*, love; an ancient name for a plant fabled to possess the virtue of restoring the soft passion. Nat. ord., *Houseleeks* [*Crassulacæ*]. Linn., 11-*Dodecandria* 1-*Monogynia*.)

These are very pretty little greenhouse plants; do well in sand and loam, mixed with a little lime-rubbish, and are increased either from seeds sown in spring, or from cuttings at any time; even a single leaf will make a plant. The cuttings should be laid to dry a day or two before planting.

A. angustifolia (narrow-leaved). 1. Pink. July. Cape of Good Hope. 1820.
— *arachnoides* (cobwebbed). 12. Pink. August. Cape of Good Hope. 1790.
— *filamentosa* (thready). 1. Pink. September. Cape of Good Hope. 1795.
— *intermedia* (intermediate). Pink. July. Cape of Good Hope. 1824.
— *lancoleta* (spear-leaved). 1. Pink. September. Cape of Good Hope. 1796.
— *polyphylla* (many-leaved). 1. Pink. August. Cape of Good Hope. 1818.
— *rotundifolia* (round-leaved). 1. Pink. August. Cape of Good Hope. 1732.
— *rubens* (reddish-leaved). 1. Red. August. Cape of Good Hope. 1796.
— *rufescens* (rusty-coloured). 1. Pink. July. Cape of Good Hope. 1818.
— *varians* (varying). 1. Pink. August. Cape of Good Hope. 1813.

ANACARDIUM. (From *ana*, like, and *kardia*, the heart; in reference to the form of the nut. Nat. ord., *Anacards*, or *Terebinths* [*Anacardiaceæ*]. Linn., 23-*Polygamia* 2-*Diaecia*.)

A. occidentale produces the Cashew-nut. These are stove evergreen trees, ornamental, producing paniced corymbs of sweet-smelling flowers. Soil, rich loam; ripe cuttings root readily, with their leaves on, in a pot of sand, under a glass, in heat.

A. occidentale (western). 20. Green, red. W. Ind. 1699.
— *Indicum* (Indian). 20. Green, red. E. Ind. 1699.

ANACYCLUS. (From *ana*, like, and *kyklos*, a circle; in reference to the rows of ovaries in circles round the disk. Nat. ord., *Composites* [*Asteracæ*]. Linn., 19-*Syngenesia* 2-*Superflua*.)

Common hardy annuals of no great beauty, allied to Chamomile. They should be sown in the open ground in April.

A. Alexandrinus (Alexandrian). Yellow. June. Egypt. 1828.
— *au'reus* (golden-flowered). 1. Yellow. August. Levant. 1570.
— *clavatus* (clubbed). 2. White. August. Barbary. 1810.
— *pyrethrum* (pyrethrum-like). 2. White. August. Barbary. 1837.
— *radiatus* (rayed). 2. Yellow. August. South of Europe. 1596.

ANADE'NIA. (From *a*, not, and *aden*, a gland; in reference to the absence of a honey-gland. Nat. ord., *Proteads* [*Proteacæ*]. Linn., 4-*Tetrandria* 1-*Monogynia*.)

Pretty greenhouse plants, allied to Grevillea. Grown in peat, with a little loam; can be propagated by cuttings in sand, under a bell-glass.

A. Mangle'sii (Mangle's). 3. Yellow. April. South River. 1836.
— *pulche'lla* (neat). 2. Yellow. N. Holland. 1824.

ANAGA'LLIS. Pimpernel. (From *anagelao*, to laugh; fabled to possess a virtue to remove sadness. Nat. ord., *Primeworts* [*Primulacæ*]. Linn., 5-*Pentandria* 1-*Monogynia*.)

A favourite genus with gardeners. They are very interesting plants, of easy culture; many of the perennial kinds require greenhouse protection during winter, and are readily increased by cuttings, in spring, in the hotbeds. The whole of them make excellent rock and border plants for the summer.

A. alternifolia (alternate-leaved). Yellow, pink. April. Rio Janeiro. 1839. Herbaceous perennial.
— *car'nea* (fleshy). 1. Flesh. August. Switzerland. 1819. Hardy annual.
— *fruticosa* (shrubby). 3. Vermilion. August. Morocco. 1803. Greenhouse biennial.
— *Indica* (Indian). 1. Blue. July. Nepaul. 1824. Hardy annual.
— *latifolia* (broad-leaved). 1. Purple. August. Spain. 1759. Greenhouse biennial.
— *linifolia* (flax-leaved). Blue. August. Portugal. 1796. Greenhouse biennial.
— *Marryat'tæ* (Mrs. Marryatt's). 1. Copper. July. Hybrid. 1828. Half-hardy evergreen trailer.
— *Monelli* (Monelli's). 1. Blue. July. Italy. 1648. This and the next five are greenhouse herbaceous trailers.
— *Breue'ri* (Brewer's). 2. Red. June. Gardens. 1648.
— *lilac'na* (lilac-flowered). 1. Lilac. May. 1836.
— *Phanicea* (Phenician). Scarlet. May. Morocco. 1803.
— *Phillipsii* (Phillips's). 2. Brown. June. Gardens. 1803.

- A. Mone'lli* Willmore's (Willmore's). $\frac{1}{2}$. Purple. August. Madeira. 1834.
 — *Webbia's* (P. B. Webb's). 1. Blue. July. Portugal. 1826. Half-hardy trailer.
 — *Wellsia's* (Wells's). 1. Copper. August. English hybrid. 1830. Half-hardy trailer.

ANA'GYRIS. (From *ana*, like, and *gyros*, a spiral, or turning in a circle; in reference to its curved pods. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 10-*Decandria* 1-*Monogynia*.)

Small ornamental trees, allied to *Podalyria*; require the protection of the greenhouse; soil, loam and peat; young cuttings root readily in sand and peat, under glass, planted in July.

- A. foetida* (foetid). 9. Yellow. April. Spain. 1750.
 — *glauca* (glaucous). 6. Yellow. April. South of Europe. 1800.
 — *latifolia* (broad-leaved). 19. Yellow. April. Teneriffe. 1815.

ANANA'SSA. (From *nanas*, the local name for the pine-apple in South America. Nat. ord., *Bromelworts* [Bromeliaceæ]. Linn., 6-*Hexandria* 1-*Monogynia*.)

For culture, see **PINE-APPLE**.

- A. bracteata* (bracted). 3. Crimson. April. Brazil. 1829
 — *debilis* (weak). 3. Crimson. April. Brazil. 1820.
 — *lucida* (shining). 3. Pink. April. S. Amer. 1820.
 — *sativa* (cultivated. The pine-apple). 3. Purple. April. S. Amer. 1690.

ANA'NTHERIX. (From *a*, not, and *antherix*, an awn; in reference to the want of awns, or filiform appendages to the pollen masses. Nat. ord., *Asclepiads* [Asclepiadaceæ]. Linn., 6-*Enneandria* 2-*Trigynia*.)

A hardy herbaceous plant, increased by root division; at any season, any soil suits it in an open situation.

- A. viridis* (green). $\frac{1}{2}$. Green, yellow. September. N. Amer. 1812.

ANARRH'NUM. (From *a*, not, and *rhin*, nose. The snout-like form of the allied genus *Antirrhinum* is wanting in this. Nat. ord., *Figworts* [Scrophulariaceæ]. Linn., 14-*Didynamia* 2-*Angiospermia*.)

Allied to Snapdragon. These plants are hardy biennials, and very pretty. Seeds may be sown in the open borders in spring, or the plants may be perpetuated by cuttings. See **ANTIRRH'NUM MA'JUS**.

- A. bellidifolium* (daisy-leaved). 2. Blue. July. France. 1629.
 — *fruticosum* (shrubby). 2. White. August. South of Europe. 1826.
 — *pube'scens* (downy). 12. White. August. South of Europe.

ANASTA'TICA. (From *anastasis*, resurrection; in reference to its hygrometrical property. Nat. ord., *Crusifers* [Brassicaceæ]. Linn., 15-*Tetradynamia*.)

An annual plant, indigenous to the Egyptian deserts, and called the *Rose of Jericho*. When full grown it contracts its rigid branches into a round ball, and is then tossed about by the wind. When it alights in water, or on damp ground, the branches relax and open out, as if its life was renewed; hence its name of *Resurrection Plant*. Among the superstitious tales told of it is, that "it first bloomed on Christmas Eve, to salute the birth of the Redeemer, and paid homage to his resurrection by remaining expanded till Easter." This curious annual requires frame-protection during the colder months; increased by seeds in any common soil.

- A. Hierochu'tina* (Rose of Jericho). 1. White. July. Levant. 1597.

ANCHIE'TA. (In honour of a Brazilian writer on plants of that name. Nat. ord., *Violetworts* [Violaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*.)

An ornamental evergreen stove climber. Loam and peat; increased most readily by seeds.

- A. pyrifolia* (pear-leaved). 3. White. July. Brazil. 1822.

AN'CHOVY-PEAR. See **GRI'AS**.

ANCHU'SA. (From *anchousa*, a cosmetic paint, formerly made from *A. tinctoria*, for staining the skin. Nat. ord., *Borageworts* [Boraginaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*.)

A reddish-brown substance, thought to be a peculiar chemical principle, used by dyers, is obtained from the roots of *A. tinctoria*, or alkanet, and from other plants of this order. The whole of this genus, but two, are hardy perennial, biennial, or annual ornamental plants of the easiest culture, either by seeds, or root division at any season. *A. Cape'nsis* and *pulche'lla* require a little frame-protection during the winter months.

ANNUALS.

- A. aggregata* (cluster-flowered). $\frac{1}{2}$. Blue. June. Levant. 1827.
 — *ama'na* (pleasing). 1. Blue. June. South of Europe. 1817.
 — *hybrida* (hybrid). 2. White, blue. July. Italy. 1820.
 — *Milleri* (Miller's). 1 $\frac{1}{2}$. Blue. May. 1824.
 — *parviflora* (small-flowered). 1. Blue. June. Levant. 1827.
 — *stylosa* (stylose). 1. Blue. May. Siberia. 1802.
 — *tene'lla* (delicate). 1. Blue. May. Ceylon. 1820.
 — *verrucosa* (wart). 2. Blue. July. South of Europe. 1821.

BIENNIALS.

- A. aspe'rri'ma* (very rough). 2. Blue. May. Egypt. 1817.
 — *Cape'nsis* (Cape). 1. Blue. June. Cape of Good Hope. 1830.
 — *Gmelin'i* (Gmelin's). 2. Blue. August. Podolia. 1817.
 — *latifolia* (broad-leaved). 2. Blue. May. 1826.

PERENNIALS.

- A. Agar'dhii* (Agardh's). 1. Blue. August. Siberia. 1820.
 — *angustifolia* (narrow-leaved). 2. Purple. May. South of Europe. 1640.
 — *Barrelieri* (Barrelier's). 2. Blue. July. South of Europe. 1820.
 — *cæspitosa* (tufted). $\frac{1}{2}$. Blue. June. Levant. 1823.

- A. crispata* (curled). 1. Blue. June. Corsica. 1835.
A. hispida (bristly). 2. Blue. July. Egypt. 1817.
— incarnata (flesh-coloured). 2. Flesh. August. South of Europe. 1816.
— leptophylla (slender-leaved). 2. Purple. August. Europe. 1840.
— longifolia (long-leaved). 3. Blue. July. Italy. 1819.
— maculata (spotted-leaved). 2. Blue. May. Russia. 1824.
— myosotidiflora (myosotis-flowered). 1. Pink. August. Levant. 1713.
— officinalis (official). 2. Blue. August. Tauria. 1823.
— ochroleuca (yellowish-white). 2. Purple. July. Britain.
— — Italica (Italian). 2. Pale yellow. August. Caucasus. 1810.
— paniculata (panicked). 3. Red. May. South of Europe. 1597.
— petiolata (petiolated). 1. Purple. Nepaul. 1840.
— procera (tall). 3. Blue. May. Madeira. 1777.
— rupestris (rock). 1. Blue. July. Galicia. 1824.
— sericea (silky). 1. Purple, yellow. July. Siberia. 1802.
— tinctoria (dyer's). 2. White. August. Montpellier. 1596.
— undulata (wave-leaved). 2. Purple. July. Spain. 1752.

ANDERSONIA. (In honour of Messrs Anderson, patrons of botany. Nat. ord., *Epacrids* [*Epacridaceæ*]. Linn., 5-Pentandria 1-Monogynia.)

A very pretty greenhouse shrub. Sandy peat; cuttings root readily, in spring, in common hotbed.
A. sprengeloides (sprengelia-like). 2. Pink. June. N. Holland. 1803.

ANDIRA. (Its local name in the Brazils. Nat. ord., *Leguminous Plants* [*Fabaceæ*]. Linn., 17-Diadelpchia 4-Decandria.)

Alliance obscure. Large ornamental stove trees. Soil, loam and peat; cuttings root readily under a glass, in heat.

A. inermis (unarmed). 20. Purple. W. Ind. 1773.
— racemosa (branchy). 20. Purple. Trinidad. 1818.

ANDROCYMBIUM. (From *aner*, anther, and *kymbion*, a saucer; in reference to the peculiar form of the anthers. Nat. ord., *Melanth* [*Melanthaceæ*]. Linn., 6-Hexandria 3-Triogynia.)

Few plants are more generally poisonous than this order of *Melanth*. Interesting bulbous-rooted plants, requiring the protection of frame or greenhouse; increased readily by offsets and seed. Loam and peat, with plenty of sand.

A. encomioides (encomis-like). 1. Green. April. Cape of Good Hope. 1794.
— melanthioides (melanthium-like). 1. White. July. Cape of Good Hope. 1823.
— volutare (rolled-leaved). 1. White. April. Cape of Good Hope. 1816.

ANDROMEDA. (A classical name, after the daughter of Cepheus and Cassiope, King and Queen of Æthiopia. Nat. ord., *Heathworts* [*Ericaceæ*]. 10-Decandria 1-Monogynia.)

An extensive family of beautiful shrubs, all evergreen and all hardy, except those otherwise specified; delight in a peaty soil, although some of them will do well in any soil; generally increased by layers, put down about the month of September, to remain till that time twelvemonth; also by seeds, which should be sown as soon as ripe in large pans or pots, and covered thinly with earth in a cold frame, but plenty of air given.

HARDY.

- A. acuminata* (acuminate). 3. White. August. N. Amer. 1765.
— angustifolia (narrow-leaved). 1. White. August. N. Amer. 1748.
— arboorea (sorrel-tree). 40. White. August. N. Amer. 1752.
— axillaris (axil-flowering). 1. White. June. N. Amer. 1765.
— — longifolia (long-leaved). 1. White. July. N. Amer. 1765.
— calyculata (small-calyxed). 2. White. March. N. Amer. 1748.
— — latifolia (broad-leaved). 2. White. March. Newfoundland. 1748.
— — na'na (dwarf). 1. White. March. Newfoundland. 1748.
— — ventricosa (inflated). 2. White. March. Russia. 1748.
— cane'scens (hoary). 3. White. June. N. Amer. 1748.
— Catesbæi (Catesby's). 2. White. June. N. Amer. 1793.
— coriacea (thick-leaved). 3. Pink. July. N. Amer. 1765.
— — rubra (red-flowered). 3. Red. July. N. Amer. 1765.
— crispata (curled). 3. White. July. N. Amer. 1824.
— dealbata (whitened). 2. Pink. April. N. Amer. 1824.
— fastigiata (pyramidal). 2. White. May. Himalaya. 1855.
— floribunda (many-flowered). 3. White. May. N. Amer. 1812.
— glaucophylla (glaucous-leaved). 1. Pink. July. N. Amer. 1812.
— hypnoides (moss-like). 1. White, red. June. Lapland. 1798. Half-hardy deciduous creeper.
— Maria'na (Maryland). 2. White. June. N. Amer. 1763.
— — oblonga (oblong-leaved). 2. White. June. N. Amer. 1736.
— — ovalis (oval-leaved). 2. White. June. N. Amer. 1736.
— pilulifera (pellet-bearing). 3. White. June. West Florida. 1842.
— polifolia (polium-leaved). 1. Pink. July. West Florida. 1842.
— — grandiflora (large-flowered). 1. Pink. April. Ingria. 1790.
— — latifolia (broad-leaved). 3. Pink. July. N. Amer. 1790.
— — media (wild rosemary). 1. White. July. Britain. 1790.
— — minima (smallest). 1. Pink. April. Britain. 1790.
— — oleifolia (olive-leaved). 1. Pink. April. Britain. 1790.
— — revoluta (rolled-back-leaved). 1. Pink. April. North of Europe. 1783.
— — subulata (awl-leaved). 1. Pink. July. North of Europe. 1783.
— racemosa (branchy). 3. White. June. N. Amer. 1736.

- A. latifolia* (broad-leaved). 3. White. July. N. Amer. 1736.
 ——— *stricta* (upright). 4. White. July. N. Amer. 1736.
 ——— *rosmarinifolia* (rosemary-leaved). 2. Pink. July. N. Amer. 1736.

STOVE.

- A. boxifolia* (box-leaved). 2. Pink. July. Mauritius. 1822.
 ——— *fasciculata* (bunched). 20. White. April. Jamaica. 1824.
 ——— *jamaicensis* (Jamaica). 6. White. June. Jamaica. 1793.
 ——— *rubiginosa* (ruddy). 10. White. July. W. Ind. 1736.

GREENHOUSE.

- A. Japo'nica* (Japan). 3. White. June. Japan. 1806.
 ——— *neriifolia* (oleander-leaved). 3. Crimson. June. Brazil. 1851.
 ——— *ovalifolia* (oval-leaved). 20. White. June. N. Amer. 1825.
 ——— *phillyreaefolia* (phillyrea-leaved). 1. White. January. West Florida. 1842.
 ——— *salicifolia* (willow-leaved). 4. Pale green. June. Mauritius. 1825.
 ——— *Sinensis* (Chinese). 2. Blush. June. China. 1826.
 ——— *speciosa* (showy). 3. White. August. Carolina. 1800.
 ——— *glauca* (milky-green). 2. Pink. August. Carolina. 1800.
 ——— *nitida* (shining-leaved). 3. White. August. Carolina. 1800.
 ——— *pulverulenta* (dusty-leaved). 3. White. August. Carolina. 1800.
 ——— *spicata* (spiked). 2. White. June. N. Amer. 1800.
 ——— *tetragona* (four-angled). 1. White. April. Lapland. 1810. Half-hardy.

ANDRO'SACE. (From *aner*, a man, and *sakos*, buckler; in reference to the resemblance of the anther to an ancient buckler. Nat. ord., *Primeworts* [Primulacæ]. Linn., 5-Pentandria 1-Monogynia.)

A favourite family of small alpine plants. All do best, though hardy, grown in pots, in peat and sandy loam, and carefully watered; increased by seeds; and the perennials by cuttings, or root division. All are interesting plants for the rock-work in summer, and in winter protected in frame.

ANNUALS.

- A. elongata* (elongated). 1. White. April. Austria. 1776.
 ——— *filiformis* (thread-like). 1. White. May. Siberia. 1820.
 ——— *macrocarpa* (large-capsuled). 1. White. July. Siberia. 1827.
 ——— *maxima* (greatest). 1. White. April. Austria. 1797.
 ——— *nana* (dwarf). 1. White. April. Denmark. 1803.
 ——— *obtusifolia* (blunt-leaved). 1. Pink. April. Italy. 1817.
 ——— *septentrionalis* (northern). 1. White. May. Russia. 1755.

BIENNIALS.

- A. acutia* (stalkless). 1. White. July. Siberia. 1825.
 ——— *alismoides* (alisma-like). 1. White. August. Siberia. 1820.

- A. brevifolia* (short-leaved). 1. White. May. South of France. 1820.
 ——— *lactiflora* (milk-flowered). 1. White. August. Siberia. 1806.

PERENNIALS.

- A. ca'rne'a* (flesh-coloured). 1. Flesh. July. Switzerland. 1768.
 ——— *carinata* (keel-shaped). 1. Yellow. April. N. Amer. 1826.
 ——— *chamaejasme* (bastard jasmine). 1. Pink. July. Austria. 1768.
 ——— *la'ctea* (milk-white). 1. White. July. Austria. 1752.
 ——— *lanugino'sa* (woolly-leaved). $\frac{1}{2}$. Rose, yellow. August. Himalaya. 1842.
 ——— *linea'ris* (linear-leaved). $\frac{1}{2}$. White. April. N. Amer. 1806.
 ——— *villosa* (hairy). Pink. June. Pyrenees. 1790.

ANDROSE'UM. (From *aner*, man, and *haima*, blood; in reference to the juice of the plant. Nat. ord., *Tutsans* [Hypericacæ]. Linn., 16-Monadelphia 8-Polyandria.)

A hardy, herbaceous, pretty perennial, readily increased by seeds or root division. Does well under the drip of large trees.

- A. officinale* (officinal). 2. Yellow. August. Britain.

ANDRY'ALA. (Of unknown meaning. Nat. ord., *Composites* [Asteracæ]. Linn., 10-Syngenesia 1-Æqualis. Allied to Hieracium.)

Both the greenhouse and hardy species are rather pretty, and will grow in any common soil; they are increased by seeds and root division. All are hardy, except those otherwise described.

- A. arge'ntea* (silvery). 1. Yellow. August. Pyrenees. 1817. Biennial.
 ——— *cheiranthifolia* (stock-leaved). 2. Yellow. June. Madeira. 1777. Greenhouse perennial.
 ——— *crithmifolia* (sapphire-leaved). 1. Yellow. August. Madeira. 1778. Greenhouse biennial.
 ——— *ined'na* (hoary). 1. Yellow. June. Pyrenees. 1818. Biennial.
 ——— *integrifolia* (entire-leaved). 1. Yellow. August. South of Europe. 1711. Biennial.
 ——— *nigricans* (blackish-flowered). 1. Yellow. August. Barbary. 1804. Annual.
 ——— *pinnatifida* (pinnatifid-leaved). 1. Yellow. July. Madeira. 1778. Greenhouse biennial.
 ——— *Ragus'ina* (Ragusan). 1. Yellow. August. Archipelago. 1753. Greenhouse perennial.
 ——— *runcinata* (runcinate). 1. Yellow. July. South of Europe. 1711. Biennial.

ANILE'MA. (From *a*, not, and *eilema*, involucre; in reference to the absence of the involucre. Nat. ord., *Spiderworts* [Commelinacæ]. Linn., 3-Triandria 1-Monogynia.)

All perennials and pretty little trailing-plants, except *A. longifolia* and *A. Si'niea*. They are increased by seed and root division; soil, loam, peat, leaf-mould, and sand.

GREENHOUSE.

- A. affinis* (similar). 1. Blue. August. N. Holland. 1820. Evergreen.

- A. biflora* (two-flowered). 1. Blue. August. N. Holland. 1820. Evergreen.
 — *nudiflora* (naked-flowered). 1. Blue. July. E. Ind. 1824. Biennial.
 — *Sinica* (Chinese). 1. Purple-blue. May. China. 1820. Herbaceous perennial.
 — *spirata* (spiral). 1. Blue. July. E. Ind. 1783. Evergreen.

STOVE.

- A. acuminata* (pointed). 1. Blue. August. N. Holland. 1822. Evergreen.
 — *equinoctialis* (equinoctial). 1. Blue. July. Guinea. 1820. Evergreen.
 — *ambigua* (ambiguous). 3. Blue. July. Sierra Leone. 1822. Herbaceous.
 — *crispata* (curled-leaved). Blue. N. Holland. 1822.
 — *longifolia* (long-leaved). 1. Blue. July. Mozambique. 1825. Herbaceous perennial.
 — *nudicaulis* (naked-stemmed). 1. Blue. July. E. Ind. 1818. Evergreen.
 — *serrulata* (saw-edged). 1. Blue. July. Trinidad. 1824. Evergreen.

ANE'MIA. (From *anemon*, naked; in reference to the naked inflorescence. Nat. ord., Ferns [Polypodiaceæ]. Linn., 24. *Cryptogamia* 1-*Filices*.)

Stove herbaceous perennials, allied to Schizœa; soil, loam and peat; readily increased by seeds or root division.

- A. adiantifolia* (maiden-hair-leaved). 3. Brown. August. W. Ind. 1793.
 — *coccinea* (scarlet). 1. Brown. August. W. Ind. 1830.
 — *collina* (hill). 1. Brown. August. Brazil. 1829.
 — *flexuosa* (zigzag). 1. Brown. August. S. Amer. 1831.
 — *fraxinifolia* (ash-leaved). 1. Brown. June. Brazil. 1828.
 — *hirta* (hairy). Brazil. June. W. Ind. 1824.
 — *hirsuta* (soft-haired). 3. Brown. June. Jamaica. 1704.
 — *humilis* (dwarf). 1. Brown. July. N. Amer. 1823.
 — *lacinata* (jagged). 1. Brown. August. W. Ind. 1794.
 — *lanceolata* (lanceolate). 2. Brown. August. W. Ind. 1820.
 — *longifolia* (long-leaved). 1. Brown. August. Brazil. 1831.
 — *radicans* (rooting). 1. Brown, yellow. May. Brazil. 1831.
 — *repens* (creeping). 1. Brown. May. Brazil. 1831.
 — *tenuis* (slender). 1. Brown. May. W. Ind. 1843.
 — *Phyllitidis* (Phyllitis-like). 1. Brown. June. Trinidad. 1830.

ANE'MONE. Wind-flower. (From *anemos*, the wind; inhabiting exposed places. Nat. ord., *Crowfoots* [Ranunculaceæ]. 13. *Polyandria* 6-*Polygynia*.)

They are all hardy except *A. Capeensis* and *A. vitifolia*, which require the protection of a greenhouse in winter. These two are propagated from cuttings under glass; the tuberous-rooted from offsets; and the herbaceous from divisions of the roots; and, both from seeds. They all require a light, rich and well-drained loam. All are hardy, except where stated otherwise.

TUBEROUS ROOTED.

- A. Apennina* (Apennine). $\frac{1}{2}$. Blue. April. England.
 — *Baldensis* (Mount Baldo). $\frac{1}{2}$. White. May. Switzerland. 1792.
 — *cœrulea* (blue). $1\frac{1}{2}$. Blue. May. Siberia. 1826.
 — *Caroliniana* (Carolina). 1. White. May. Carolina. 1824.
 — *coronaria* (garland or poppy A.). $\frac{1}{2}$. Striped. June. Levant. 1596.
 — *plena* (double-flowered). $\frac{3}{4}$. Striped. April.
 — *Fischeriana* (Fischer's). $\frac{1}{2}$. White. April. Siberia. 1827.
 — *hortensis* (garden). $\frac{3}{4}$. Striped. April. Italy 1597.
 — *miniata* (red-leaved-flowered). $\frac{1}{2}$. Red. May. Gardens.
 — *lanceifolia* (lance-leaved). $\frac{1}{2}$. White. April. N. Amer. 1822.
 — *nemorosa* (grove). $\frac{1}{2}$. White, red. April. Britain.
 — *cœrulea* (blue-flowered). $\frac{1}{2}$. Light blue. May. Gardens.
 — *plena* (double-flowered). $\frac{1}{2}$. White, red. April. Britain.
 — *palmata* (palmated). $\frac{1}{2}$. Yellow. May. Portugal. 1597.
 — *flœre-albida* (whitish-flowered). $\frac{3}{4}$. Whitish. May.
 — *flœre-flavo* (yellow-flowered). $\frac{3}{4}$. Yellow. May. Portugal. 1597.
 — *flœre-plena* (double-flowered). $\frac{3}{4}$. Yellow. May.
 — *parviflora* (small-flowered). $\frac{1}{2}$. White. May. N. Amer. 1824.
 — *pavonina* (peacock-eye). 1. Red. April. France.
 — *flœre-plena* (double-flowered). 1. Red. May. Europe.
 — *fulgens* (shining). 1. Red. May. South of Europe. 1818.
 — *quinquefolia* (five-leaved. American wood). $\frac{1}{2}$. White. April. N. Amer. 1817.
 — *ranunculoïdes* (ranunculus-like). $\frac{1}{2}$. Yellow. April. England.
 — *reflexa* (bent-back). $\frac{1}{2}$. Yellow. April. Siberia. 1818.
 — *stellata purpurea* (purple-star-leaved). $\frac{1}{2}$. Purple. April. Italy. 1597.
 — *umbellata* (umbelled). 1. Blue. April. Levant. 1824.

HERBACEOUS.

- A. alba* (white). $\frac{1}{2}$. White. June. Siberia. 1820.
 — *Albana* (Albana). $\frac{1}{2}$. White. May. Caucasus. 1821.
 — *alpina* (alpine). $\frac{1}{2}$. White. Austria. 1658.
 — *acutipetala* (pointed-petaled). $\frac{1}{2}$. Blue. May. Switzerland. 1819.
 — *Capeensis* (Cape). 1. Purple. April. Cape of Good Hope. 1795. Greenhouse.
 — *cœrnea* (drooping). $\frac{1}{2}$. Red, white. May. Japan. 1806.
 — *Dahurica* (Dahurian). $\frac{1}{2}$. Flesh. May. Dahuria. 1819.
 — *deltoidæa* (triangular). White. May. Columbia. 1827.
 — *dichotoma* (forked). 1. Red, white. May. N. Amer. 1768.
 — *Gavaniana* (Gavan's). Nepal. 1844.
 — *Halleri* (Haller's). $\frac{1}{2}$. Purple. April. Switzerland. 1816.
 — *Hudsoniana* (Hudson's). $\frac{1}{2}$. White. April. N. Amer. 1827.
 — *Japonica* (Japan). 2. Rose. September. Japan. 1844.

- A. longica'pa* (long-stalked). White. June. North Ind. 1839. Half-hardy.
- *micra'ntha* (small-flowered). $\frac{1}{2}$. White, purple. April. Austria. 1800.
- *monta'na* (mountain). 1. Purple. June. Switzerland. 1830.
- *multifida* (many-cleft). 1. White. June. Magellan. 1824.
- *narcissiflo'ra* (narcissus-flowered). 1. White. May. Siberia. 1773.
- *Nuttallia'na* (Nuttall's). $\frac{3}{4}$. White. July. N. Amer. 1827.
- *obsole'ta* (obsolete). $\frac{3}{4}$. Purple. May. Germany.
- *obtusifolia* (blunt-leaved). White. June. Himalaya. 1844.
- *obtusiloba* (blunt-lobed-leaved). $\frac{1}{2}$. White. June. Himalaya. 1843.
- *pa'tens* (spreading). 1. Light yellow. June. Siberia. 1752.
- — *ochroleuca* (yellowish-white). 1. Cream. April. Siberia. 1752.
- *Pennsylvanica* (Pennsylvanian). 1. White. May. N. Amer. 1756.
- *pratensis* (meadow). $\frac{1}{2}$. Dark purple. May. Germany. 1731.
- *pulsatilla* (common pulsatilla). $\frac{1}{2}$. Violet. May. England.
- — *albida* (whitish-flowered). $\frac{1}{2}$. Whitish. April. Germany. 1834.
- — *rubra* (red-flowered). Reddish-purple. May. Germany. 1834.
- *Richardsonia* (Richardson's). $\frac{1}{2}$. Yellow. June. N. Amer. 1827.
- *rivularis* (river). $1\frac{1}{2}$. White. June. North Ind. 1840.
- *Sibirica* (Siberian). $\frac{1}{2}$. White. June. Siberia. 1804.
- *stellata* (star-flowered). $\frac{1}{2}$. White. Italy. 1597.
- *sulphurea* (sulphur-coloured). $\frac{1}{2}$. Sulphur. May. Europe. 1816.
- *sylvestris* (wood-snowdrop). $\frac{1}{2}$. White. May. Germany. 1596.
- *trifolia* (three-leaved). $\frac{1}{2}$. White. April. France. 1597.
- *Uralensis* (Ural). $\frac{1}{2}$. Blue. May. Siberia. 1824.
- *vernalis* (spring). $\frac{1}{2}$. White. April. Switzerland. 1752.
- — *flavre-luteo* (yellow-flowered). $\frac{1}{2}$. Yellow. April. South of Europe.
- *Virginia'na* (Virginian). $\frac{1}{2}$. White. May. N. Amer. 1772.
- — *grandiflo'ra* (large-flowered). 2. White. June. Gardens. Greenhouse.
- *vitifolia* (vine-leaved). 3. White. September. Nepal. 1829. Half-hardy.

The *anemone*, the florist's flower of our gardens, is the offspring of the *A. coronaria* (poppy anemone), and *A. hortensis*. Sprung from these there are annually increased varieties. A variety lasts about twelve years.

Characteristics of a good single anemone.

—The stem strong, elastic, and erect, not less than nine inches high; the flower at least two inches and a half in diameter, consisting of large, substantial, well-rounded petals, at first horizontally extended, and then turning a little upwards, so as to form a broad, shallow cup; the colour clear and distinct when diversified in the same flower, or brilliant

and striking if it consists only of one colour, as blue, crimson, or scarlet, &c.

A double anemone should have the outer petals quite flat, the second series a little shorter, the third shorter still, and so on till the centre is quite full, when the whole should form a rather flat hemisphere. Every double flower should be of one full colour.

Propagation.—Offsets from the root, and new varieties from seed.

By offsets, all the best kinds should be taken up annually at the decay of the leaf, and the root divided, at the time of taking up, to allow the wound to heal, into as many pieces or knobs as are furnished with an eye or bud, observing, however, that if they are divided very small, they flower very weak the first year.

The time for taking up the roots is May and June, when the leaf and stalk are withered; for then the roots cease to grow for a month or six weeks.

Take them up in dry weather, spread in an any place out of the sun for about a week, then clear from earth, and store in bags or boxes.

The seed.—Sow from the best single or semi-double flowers. Double flowers produce none.

Sowing.—Make the beds in a sheltered part of your garden, facing the south; remove the old soil from the beds to the depth of sixteen or eighteen inches. If it is low and swampy, with a wet, clay bottom, drain well, and do not dig so deep; if high and dry, or with a sandy or gravelly subsoil, you may go a little deeper. Then put in from four to six inches of unmixed cowdung, such as might be gathered up where these animals feed. Upon this layer of dung place as much good fresh loam as will raise the beds to their former level, or a little higher. Make the surface very fine, and then sow. Anemone-seed requires to be well rubbed with the hand, either amongst some sharp sand or finely-sifted coal-ashes, to separate the seeds. When the seed is sown, cover it immediately with some-sifted, light, sandy soil, half an inch. It will soon come up, and should be frequently watered in dry weather. Beds so made will flower the same year; mark the best, and preserve them for planting the next year.

Time for planting is October, or early in November, and the plants will come into flower in April and beginning of

May; but if some are planted in the middle of September, and a second parcel towards the middle or latter end of October, they will afford a succession of bloom from the beginning of April until the middle of May; and, if a third plantation is made in February or beginning of March, they will come into flower about the middle of May, and continue until the middle of June.

Soil and site.—The situation should be thoroughly drained, and open to the south. Any common, moderately light earth suits the anemone; overmoist and stiff soils rot the roots in winter. If necessary to make a soil, proceed as described for the seed-bed. Take maiden loam from the surface of a pasture, the top spit, turf and all; to every load of this add one of cowdung, and half a load of sea or drift-sand; blend the whole together, and form it into a ridge, in which let it remain a year, at least, turning it over once in two or three months. But, in default of pasture-earth, a good compost may be formed of common, light garden-soil and rotted cowdung, adding, to every load of the former, half a load of the latter, and about a quarter of that of drift or sea-sand; and of either of which composts the bed is to be formed. Make it about twelve or fifteen inches in depth, and three feet and a half broad.

Planting in borders.—Plant five roots together, in a patch of five or six inches in breadth, two or three inches deep.

Beds should be three feet and a half broad, with alleys eighteen inches wide between bed and bed, and fifteen or eighteen inches deep; break the earth small, but do not sift it; elevate the beds three inches above the general surface; but, if there is danger of moisture standing in winter, double or treble that is a proper height, working the whole a little rounded, and after planting, rake the surface smooth.

Plant six rows lengthwise, the roots at six inches distance in each row, and two inches deep.

The autumn plantation comes in leaf in November; but, as the plants are hardy, nothing is needful to be done till the bloom begins to appear, and then arch the beds with hoops, to support mats, to protect them from frost.

Forcing.—Double anemones, potted in September or in October, in some compost, as above particularized, may be

placed in a cold frame or pit, and watered but sparingly until the following spring, when they may be put into a warmer place. They will not stand much forcing. A second blooming may be obtained, by planting more roots, in a similar way, in December.

Mildew.—This disease first appears as pale spots on the under sides of the leaves. These spots gradually rise into tubercles, and a minute fungus bursts through. This parasite is *Æcidium guadrifidum*. Sea-sand, or a little salt mixed with the compost of the bed, is a good preventive; and sprinkling with sulphur is the best remedy. Anemones are liable to have *distorted, swollen leaves*, the cure for which is to render the soil more free from stagnant moisture.

ANE'THUM. (From *ano*, upwards, and *theo*, to run; in reference to its quick growth. Nat. ord., *Umbellifers* [Apiaceæ]. Linn., 5-*Pentandria* 2-*Digynia*.)

A genus of useful plants, succeeding well in any common garden-soil; all hardy, readily increased by seed or root division.

ANNUAL.

A. So'ua (Sowa). 1. Yellow. July. E. Ind. 1810.

BIENNIALS.

A. grave'olens (strong-smelling, or dill). 3. Yellow. July. Spain. 1570.
— *piper'dum* (peppered). 6. Yellow. July. Italy. 1824.

PERENNIALS.

A. fen'veculum (fennel). 6. Yellow. August. England.
— — *du'lee* (sweet). 4. Yellow. August. Italy.

See DILL and FENNEL.

ANGE'LICA. (In reference to its fabled angelic virtues in medicine. Nat. ord., *Umbellifers* [Apiaceæ]. Linn., 5-*Pentandria* 2-*Digynia*.)

Common water-side perennials, of not much beauty as garden-plants. The only species requiring notice here is the common *Angelica*.

A. archang'lica (archangel). 4. July. Green. England.

The stalks of this are cut in May for candying. Formerly, the stalks were blanched for eating, like celery. *Soil and Situation*: Grows best in moist situations, such as the banks of ponds and ditches. *Sowing*: Sow soon after the seed is ripe, about September, being almost useless if preserved until the spring. *Cultivation*: Sow thin, in drills a foot asunder, and half an inch deep. When five or six inches high, the plants must be thinned to a distance of at least two feet and a half from each other. In May, or early

in June of the second year, they flower, when they must be cut down, which causes them to sprout again; and, if this is carefully attended to, they will continue for three or four years; but, if permitted to run to seed, they perish soon after.

ANGE'LICA-TREE. *Ara'lia spino'sa*.

ANGELO'NIA. (From *angelon*, its local name in South America. Nat. ord., *Fig-worts* [Scrophulariaceæ]. Linn., 14-*Didynamia* 2-*Angiospermia*. Allied to *Hemimeris*.)

Pretty stove herbaceous plants; seed in heat, sown in February; division of the roots of several kinds, and cuttings of young shoots in April, inserted in sand under a bell-glass; must not be kept too damp; loam and peat. Summer temp., from 60° to 70°; winter, 55° to 60°.

- A. angustifolia* (narrow-leaved). 1½. Deep violet. June. Mexico. 1846.
- *cornigera* (horn-bearing). 1. Purple. August. Brazil. 1839.
- *floribunda* (many-flowered). 1. Purple. August. Brazil. 1839.
- *Gardneri* (Mr. Gardner's). 1. Purplish-white. May. Pernambuco. 1838.
- *grandiflora* (large-flowered). 1. Purplish-white. May. Pernambuco. 1838.
- *minuta* (crimson). 1. Purplish-white. May. Pernambuco. 1838.
- *salicariifolia* (willow-leaved). 1. Light blue. August. S. Amer. 1818.

ANGIA'NTHUS. (From *aggos*, vessel, and *anthos*, a flower. Nat. ord., *Composites* [Asteraceæ]. Linn., 19-*Syngenesia* 5-*Segregata*.)

A pretty greenhouse herbaceous plant; division of the root; seed, and cuttings under a bell-glass. Summer temp., 50° to 70°; winter, 40° to 50°.

- A. aurens* (golden). 1. Yellow. July. N. Holland. 1803.

ANGIO'PTERIS. (From *aggeion*, a vessel, and *pteris*, a wing. Nat. ord., *Ferns* [Polypodiaceæ]. Linn., 24-*Cryptogamia* 1-*Filices*.)

A stove Fern, cultivated like *Acropteris*.

- A. evetica* (evetic). June. Brown. Island of Luzon.

ANGOPHORA. (From *aggos*, a vessel, and *phero*, to bear; in reference to the shape of the fruit. Nat. ord., *Myrtle-blooms* [Myrtaceæ]. Linn., 12-*Icosandria* 4-*Polyginia*.)

This is the most natural order of plants, and no blue flower has yet been found to belong to it. Greenhouse evergreen shrubs; cuttings under a bell-glass; loam and peat. Summer temp., 50° to 65°; winter, 45°.

- A. cordifolia* (heart-leaved). 6. Yellow. August. N. Holland. 1789.
- *lanceolata* (lanceolate-leaved). 6. Yellow. August. N. Holland. 1816.

ANGRE'CUM. (From *angurek*, the Ma-

layan term for air-plants. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-*Gynandria* 1-*Monandria*.)

By offsets in spring, sphagnum moss, and broken potherds, and pieces of wood; kept moist and hot when growing in summer; cool in winter; hot and dry when coming into bloom. Summer temp., 70° to 85°; winter, 55° to 60°.

- A. apiculatum* (small-pointed). ½. White. Sierra Leone. 1844.
- *armentacum* (apricot-coloured-flowered). Yellowish-pink. Sierra Leone. 1838.
- *Ashante'si* (Ashantee). ½. Cinnamon. June. Ashantee. 1843.
- *bilobum* (two-lobed). ½. White. September. Cape Coast. 1841.
- *caudatum* (tail-tipped). 1½. White, green. August. Sierra Leone. 1834.
- *caulescens* (stemmed). 1½. Green, white. September. India. 1834.
- *clandestinum* (concealed-flowered). ½. Green, white. September. Sierra Leone. 1835.
- *distichum* (two-rowed-leaved). ½. White. September. Sierra Leone. 1834.
- *eburneum* (ivory-tipped). 1½. White. January. Madagascar. 1826.
- *microanthum* (small-flowered). ½. White. Sierra Leone. 1834.
- *odoratissimum* (very sweet-scented). White. Sierra Leone. 1832.
- *ornithorhynchum* (bird's-beak). White. Brazil. 1840.
- *pellucidum* (transparent). ½. White. November. Sierra Leone. 1842.
- *pertusum* (broken). ½. White. October. Sierra Leone. 1836.
- *polystachyum* (many-spiked). Peru. 1840.
- *subulatum* (awl-shaped). White. Sierra Leone. 1832.
- *teretifolium* (straw-leaved). White. Sierra Leone.

ANGUILLA'RIA. (From *anguilla*, an eel; in reference to the twisted seeds. Nat. ord., *Melanths* [Melanthaceæ]. Linn., 6-*Hexandria* 3-*Triynia*. Allied to *Verastrum*.)

Herbaceous plants, requiring a little protection in winter; division of roots, and cuttings, under a hand-light; peat and loam.

- A. biglandulosu* (two-glanded). 1. Purple. May. N. Holland. 1826.
- *dioeca* (diœcious). 1. Purple. May. N. S. Wales. 1826.
- *Indica* (Indian). 1. Dark purple. June. Tranquebar. 1818.

ANGULO'A. In honour of *Angulo*, a Spanish naturalist. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-*Gynandria* 1-*Monogynia*.)

Stove orchids, requiring the same culture as *Angræcum*.

- A. Clowesii* (Clowes'). 1½. May. Yellow and white. Columbia. 1842.
- *floribus flavis* (Clowes' straw-coloured). 1½. May. Pale yellow. 1845.
- *grandiflora* (large-flowered). 1. July. S. Amer. 1823.
- *Ruckeri* (Rucker's). 1½. May. Yellow and crimson. 1945.

- A. superba* (superb). Crimson and purple. Mexico.
 — *uniflora* (one-flowered). May. Cream-coloured. Peru. 1843. There is a variety of this with pink flowers.

ANGU'RIA. (One of the Greek names for the cucumber. Nat. ord., *Cucurbits* [*Cucurbitaceæ*]. Linn., 21-Monœcia 2-Diœndria.)

Tropical evergreen climbers; seed and cuttings; peat and loam. Summer temp., 55° to 70°; winter, 55° to 60°.

- A. Mackaya'na* (Mackay's). 1847.
 — *pedata* (pedate). 20. Yellow. July. S. Amer. 1820.
 — *trilobata* (three-lobed). 20. Pink. July. Carthage. 1793.
 — *trifoliata* (three-leafed). 10. Yellow. July. St. Domingo. 1793.
 — *umbrosa* (shady). 10. Yellow. July. S. Amer. 1827.

A'NIA. (After a Roman beautiful widow. Nat. ord., *Orchids* [*Orchidaceæ*]. Linn., 20-Gynœndria 1-Monogynia.)

- A. bicornis* (two-horned). 2. March. Yellow, green. Ceylon. 1841. Cultivated like Anguloa.

ANIGOZA'NTHOS. (From *anoigo*, to expand, and *anthos*, a flower; in reference to the branching expansion of the flower-stalks. Nat. ord., *Bloodworts* [*Hæmodoraceæ*]. Linn., 6-Hexandria 1-Monogynia.)

Greenhouse herbaceous plants; division of the roots in spring; loam, one part to three of peat. Summer temp., 45° to 60°; winter, 40° to 45°.

- A. coccinea* (scarlet). 5. Crimson. July. Swan River. 1837.
 — *flavidus* (yellowish-green-flowered). 3. Yellow. July. N. Holland. 1808.
 — *bicolor* (two-coloured-flowered). 3. Scarlet, green. May. Swan River. 1837.
 — *fuliginosus* (sooty). 3. Yellow. June. Australia.
 — *humilis* (dwarf). Brown. Swan River.
 — *Mangle'sii* (Mr. Mangle's). 3. Green. May. Swan River. 1833.
 — *angustifolia* (narrow-leaved). 3. Green, red. July. N. Holland. 1836.
 — *pulcherrimus* (beautiful). 2½. Yellow, white. Swan River. 1840.
 — *rusta* (rusty). 2. Yellow, red. June. N. Holland. 1824.

ANIMAL MATTERS, without any exception, are beneficial as manures; for they all yield, during putrefaction, gases and soluble substances, that are imbibed greedily by the roots of plants. That this is the case, affords no cause for wonder, because animal matters and vegetable matters are alike compounded of carbon, hydrogen, oxygen, and nitrogen, with a small addition of saline matters. The general consideration of MANURES will be found under that title, and other relative information under the heads DUNG and VEGETABLE MATTERS; and in this place,

we shall confine our attention to some of the most available of strictly animal matters. See, also, the article BONES.

Blubber, or fat of the whale, contains train-oil, composed of—

Carbon	.	.	.	68.87
Hydrogen	:	:	:	16.10
Oxygen	:	:	:	15.03

with a little animal skin and muscle. 40 gallons of train-oil, mixed with 120 bushels of screened soil, grew 23 tons of turnips per acre, on a soil where 40 bushels of bones broken small, and 80 bushels of burnt earth, produced only 21 tons.

Fish, generally, such as sprats, herrings, pilchards, five-fingers, and shell-fish, owe their powerful fertilizing qualities not only to the oil they contain, but also to the phosphate of lime in their bones. From 25 to 45 bushels per acre are the extreme quantities to be applied broadcast; but if in the drills, with the crop, 16 bushels are ample. They are beneficial to all the gardener's crops, but especially to asparagus, parsnips, carrots, beets, onions, and beans. Shell-fish should be smashed before being applied.

Blood is a very rich manure, and has been applied with especial benefit to vines and other fruit-trees. The blood of the ox contains about eighty per cent. of water, and twenty per cent. solid matter. The latter contains, in 100 parts, when dried—

Carbon	.	.	.	51.950
Hydrogen	.	.	.	7.165
Azote	.	.	.	17.172
Oxygen	.	.	.	19.295
Ashes	.	.	.	4.418

The ashes contain various salts, as chloride of sodium (common salt), phosphate of lime, with a little oxide of iron. Sugar-baker's skimmings owe their chief fertilizing qualities to the blood used in clarifying the sugar, and which is combined with vegetable albumen, and extractive.

Woollen Rags, cut into very small pieces, are a good manure, decomposing slowly, and benefiting the second as much as the first crop. Hops and turnips have been the crops to which they have been chiefly applied. Half a ton per acre is a fair dressing. Wool is composed of—

Carbon	.	.	.	50.653
Hydrogen	.	.	.	7.029
Azote	.	.	.	17.710
Oxygen	}	.	.	24.608
Sulphur	}	.	.	

It leaves a very slight ash, containing

minute quantities of muriate of potash, lime, and probably phosphate of lime. *Feathers* and *hair* closely resemble it in their components. *Horns* are composed of—

Carbon	51.578
Hydrogen	6.712
Azote	17.284
Oxygen }	24.426
Sulphur }	

besides minute proportions of sulphate, muriate and phosphate of potash, phosphate of lime, and other less important matters.

Shells.—Those of the following are thus composed:—

	Phosphate of lime.	Carbonate of lime.	Animal matter.
Oyster	1.2	98.3	0.5
Lobster	7.0	63.0	30.0
Hen's Eggs	5.7	89.6	4.7

They have all been found good, in a powdered form, as manures for turnips, and must be for all other plants, and on all soils where calcareous matters are deficient.

ANISCA'NTHA. (From *anisos*, unequal, and *akantha*, a spine. Nat. ord., *Chenopods* [*Chenopodiaceæ*]. Linn., 4-*Tetrandria* 1-*Monogynia*.)

Evergreen under-shrub; cuttings of young shoots, a little hard at bottom, in April; peat and loam. Summer temp., 50° to 65°; winter, 45°. *A. divaricata* (straggling). 2. N. Holland. 1824.

ANISA'NTHUS. (From *anisos*, unequal, and *anthos*, a flower. Nat. ord., *Irids*, [*Iridaceæ*]. Linn., 3-*Triandria* 1-*Monogynia*.)

This is now a synonyme of *Antholyza*. Greenhouse or frame-bulbs, requiring protection in winter; offsets; peat and loam. Summer temp., 50° to 60°; winter, 40° to 45°.

A. Cuno'nia (Cunon's). 2. Scarlet. June. Cape of Good Hope. 1756.

— *quadrangul'aris* (quadrangular). 2. Yellow. April. Cape of Good Hope. 1700.

— *spl'ndens* (splendid). 2. Scarlet. June. Cape of Good Hope. 1828.

ANI'SE. *Tra'gium ani'sum*.

Half-hardy annual, used for garnishing or seasoning. Sow during April, in pots, plunged in a hotbed; remove to a warm, light border in May. Thin the plants to six inches apart. The seed is ripe in August or September. It does not bear transplanting.

A'NISEED-TREE. *Ill'i'cium anisa'tum*.

ANISOCCH'LUS. (From *anisos*, unequal, and *cheilos*, lip. Nat. ord., *Labiates* or *Lipworts* [*Lamiaceæ*]. Linn., 14-*Didynamia* 1-*Gymnospermia*.)

Stove biennial; seeds in heat, or cuttings in sandy soil, under a bell-glass. Summer temp., 65° to 75°; winter, 55° to 60°.

A. carno'sa (fleshy). 2. Lilac. August. E. Ind. 1778.

ANISO'MELES. (From *anisos*, unequal, and *melos*, a member. Nat. ord., *Labiates* [*Lamiaceæ*]. Linn., 14-*Didynamia* 1-*Gymnospermia*.)

Chiefly evergreen under-shrubs; cuttings of stove species in April, in heat, under a bell-glass. Greenhouse species, under glass, without heat. Sow the annual in March, in heat; loam and peat. Temperature same for stove plants, 55° to 75°; winter, 50° to 60°. Greenhouse, winter, 45°.

A. furcata (forked). 1. Blue. August. Nepal. 1824. Greenhouse.

— *Malaba'rica* (Malabar). 2. Violet. August. E. Ind. 1823.

— *moscha'ta* (musk). 2. Purple. August. N. Holland. 1824.

— *ova'ta* (ovate-leaved). 2. Pink. August. E. Ind. 1823. Stove annual.

ANISO'PIA HORTICO'LA, is a beetle which often attacks the rose-flowers about June. Its maggots live under turf, and feed on its roots.

ANNUALS are plants which live but one year, and, consequently, require to be raised from seed annually. By a particular mode of culture some of them may be made to live longer. Thus, *mignonette* will continue to bloom for two or more years if not allowed to ripen its seeds.

Hardy Annuals, or those requiring no protection, are sown where they are to remain in the open borders, from the end of February to the beginning of May. To flower late in autumn, some may be sown in the middle of June. Whether sown in patches or broad masses, whether mixed or separate, must be left to the taste of the sower, guided by his knowledge of the colours of the flowers. These should be well contrasted. Every patch should be properly labelled, which is easily done by having some deal laths, one inch broad, planed smooth, cut into nine-inch lengths, and painted white. On these the name can be written with a lead pencil.

Half-hardy Annuals, such as require artificial heat while seedlings, are sown in a gentle hotbed in March and April. The seedlings, when an inch or two long, to be transplanted into another gentle hotbed, or greenhouse, to remain until the middle of May, then to be transplanted into the borders, and attended like other annuals.

Tender or Greenhouse Annuals, requiring artificial heat and shelter during their

whole growth, are sown early in March, on a gentle hotbed; to be transplanted into another, like the half-hardy, and thence into pots, to remain in the greenhouse. Some of them, if moved into a warm border in June, will bloom freely, and even ripen seed.

ANODO'NTIA. (From *a*, not, and *odontos*, a tooth; in reference to the stamens. Nat. ord., *Crucifers* [Brassicaceæ]. Linn., 15-*Tetradynamia*. Allied to *Alyssum*.)

For general management, see *ALYSSUM*.

- A. dasyca'rpa* (thick-fruited). ♂. Yellow. July. Siberia. 1819.
 — *edentulum* (toothless). 1. Yellow. July. Hungary. 1820.
 — *halimifolia* (purslane-leaved). ♀. White. June. South of Europe. 1820.
 — *macroca'rpa* (long-fruited). ♀. White. June. France. 1823.
 — *obovata* (obovate). ♀. Yellow. June. France. 1830.
 — *rupe'stre* (rock). ♀. White. June. Naples. 1825.
 — *spino'sa* (thorny). ♀. White. June. South of Europe. 1833.

ANGECTOCHI'LUS. (From *anoikios*, open, and *cheilos*, a lip; in reference to the spreading apex of the lip. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-*Gynandria* 1-*Monandria*.)

Division of the roots; lumpy peat; a little loam and charcoal; and well drained. Summer temp., 65° to 85°; winter, 55° to 65°.

- A. seta'ceus* (bristly). ♂. White, green. June. Java. 1836.
 — — — *var. pictus* (painted-bristly).

The natives of Ceylon, where it grows in the hedge-rows, admire it much, and give it the regal name of "The King of the Woods;" and well it deserves the title; but yet the leaves are the only part that attract our admiration. The flowers, though various, are not at all beautiful; but the leaves are the most beautiful of all the leaves in the world. The ground colour is of a dark velvety-green, tinged with a metallic lustre, curiously inlaid, as it were, with streaks of golden net-work. If examined with a moderate microscope, when the sun is shining, this golden net-work is really glorious, having the appearance of the richest rubies. But no description can do justice to the beauty of the leaves of this plant. The variety named *pictus*, or painted—brought home, we believe, by Mr. Gibson, from the Khorra Hills, India—has a broad stripe of yellow down the centre of each leaf, in addition to the golden net-work. It is equally beautiful with the original species, but, if anything, more difficult to cultivate. Messrs. Low and Co., of the Clapton Nurseries, have imported another variety, from Borneo, of a stronger growth, and on that account worth cultivating, though not quite so beautiful as the other two varieties. (*Cottage Gardener*, iii. 224.)

ANOMATHE'CA. (From *anomos*, singular, and *theca*, a capsule, or seed-pod. Nat. ord., *Irids* [Iridaceæ]. Linn., 3-*Triandria* 1-*Monogynia*.)

Very neat, *Ixia*-like, dwarf, bulbous plants, which flower in the open borders all summer, in any light, garden-soil; ripen seeds freely, and require the protection of a frame in winter. Propagated from seeds and offsets; light, sandy loam and common soil; bulbs require, in most places, to be kept in a frame, or in stored bags, during winter. *A. crue'nta*, especially, is well fitted for a flower-bed, or for the window-sill.

- A. crue'nta* (bloody). 1. Crimson. July. Cape of Good Hope. 1830.
 — *ju'ncea* (rushy). 1. Lilac. May. Cape of Good Hope. 1791.

ANO'NA. (From *menona*, its local name in Banda. Nat. ord., *Anonads* [Anonaceæ]. Linn., 13-*Polyandria* 6-*Polygamia*.)

Tropical evergreen trees and shrubs; cuttings of ripened wood, in strong heat, under a glass, in April; rich loam. Summer temp., 60° to 80°; winter, 55° to 65°.

- A. amplexica'u'lis* (stem-clasping). 12. Yellow, green. Mauritius. 1824.
 — *Asia'tica* (Asiatic). 12. Yellow, green. Asia. 1816.
 — *Cherimo'lia* (Cherimoyer). 18. Brown. August. S. Amer. 1739.
 — *cine'rea* (grey). 15. Yellow, green. W. Ind. 1818.
 — *glabra* (smooth-fruited). 16. Brown. August. Carolina. 1774.
 — *laurifo'lia* (laurel-leaved). 15. Brown. W. Ind. 1773.
 — *longifo'lia* (long-leaved). 20. Yellow, green. Guiana. 1820.
 — *Mexica'na* (Mexican). 12. Yellow, green. Mexico. 1833.
 — *muc'o'sa* (mucous). 12. Yellow, green. E. Ind. 1820.
 — *murica'ta* (muricated. The sour sop). 10. Green, yellow. W. Ind. 1656.
 — *obtusifo'lia* (blunt-leaved). 15. Yellow, green. W. Ind. 1810.
 — *paludo'sa* (marsh). 4. Green. Guiana. 1830.
 — *pulu'stris* (marsh. The cork-wood). 15. Yellow. W. Ind. 1731.
 — *puncta'ta* (spotted). 12. Yellow, green. Trinidad. 1818.
 — *reticulata* (netted). 20. White, green. S. Amer. 1690.
 — *Senegale'nsis* (Senegal). 10. Yellow, green. Guiana. 1824.
 — *squamo'sa* (scaly. The sweet sop). 20. White, green. S. Amer. 1731.

ANO'PTERUS. (From *ano*, upwards, and *pterus*, a fern; alluding to the semblance of the leaves. Nat. ord., *Escalloniads* [Escalloniaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*.)

A greenhouse evergreen shrub; cuttings under a bell-glass, in heat; sandy loam and peat. Usually in a cold pit or greenhouse, but should be tried on a wall, with slight winter protection.

- A. glandulo'sus* (gland-leaved). 3. December. White and pink. Van Diemen's Land. 1846.

ANSE'LLIA. (In honour of Mr. Ansell, the botanical collector who accompanied the ill-fated Niger Expedition. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-*Gynandria* 1-*Monogynia*. Allied to *Aganisia*.)

A stove orchid. Divisions; turfy heath-mould and broken potsherds. Temp. in summer, 60° to 85°, with plenty of moisture at root and top; winter, 55° to 60°, and kept dry.

Africa'na (African). 3. Brown, green, and yellow. February. Fernando Po. 1844.

ANT. (*Formi'ca*.) To drive this insect away, dig up its nests and haunts, and mix the earth with gas-lime. To kill it, pour over the nest, at night, a strong decoction of elder-leaves. To trap it, smear the inside of a garden-pot with honey, invert it over the nest, and when crowded with them, hold it over the steam of boiling water; or turn a flower-pot, with its hole stopped, over the nest. The ants build up into it, and the whole colony may be taken away in a shovel. They may be kept from ascending standard and espalier trees, by tying a piece of wool round the stems and the supporters.

ANTENNA'RIA. (From *antennæ*, feelers; in reference to the downy heads of the seeds. Nat. ord., *Compositæ* [Asteraceæ]. Linn., 19-Syngenesia 2-Superflua.)

Root division and seeds; common, light soil. In most places the Nepal species require the protection of a cold pit in winter.

- A. alpi'na* (alpine). 1. Pink. June. Alpine. Europe. 1775.
- *Carpa'tica* (Carpathian). 1. Pink. June. Carpathian Mountains. 1775.
- *contorta* (twisted-leaved). 2. White. July. Nepal. 1821.
- *dioi'ca* (dioecious). 1. Pink. June. Britain. 1821.
- *hyperbo'rea* (northern). 1. Whitish. June. Isle of Skye. 1821.
- *margarita'cea* (pearly). 2. White. July. England. 1821.
- *plantagin'nea* (plantain-leaved). 1. White. July. Virginia. 1759.
- *triplin'eois* (three-nerved). 1. White. August. Nepal. 1823.

A'NTHEMIS. Chamomile. (From *An themon*, a flower; in reference to the great number of flowers produced. Nat. ord., *Compositæ* [Asteraceæ]. Linn., 19-Syngenesia 2-Superflua.)

With a few exceptions, they are hardy plants. Division of plant, and seeds; common soil. The single-flowering *A. nobilis* is superior to the double for medicinal properties.

HERBACEOUS PERENNIALS.

- A. alpi'na* (alpine). 1. White. July. Austria. 1824.
- *apiifo'lia* (parsley-leaved). 2. White. July. China. 1819.
- *Barrelie'ri* (Barrelier's). 1. White. August. Italy. 1825.
- *Carpa'tica* (Carpathian). 1. White. June. Carpathia. 1820.
- *chamomi'lla* (chamomile). 1. White. July. South of Europe. 1807.
- *coronopifo'lia* (buck-horn-leaved). 1. White. May. Spain. 1818.
- *fruticulosa* (shrubby). 2. White. August. Caucasus. 1820.

- A. globosa* (globose). 1. White. July. South of Europe. 1570.
- *grandiflo'ra* (great-flowered). 1. White. July. South of Europe. 1825.
- *Ibe'rica* (Iberian). 1. White. August. Iberia. 1820.
- *incrassata* (thick-peduncled). 1. White. July. France, 1818.
- *Kitaibel'lii* (Kitaibel's). 1. White. June. Hungary. 1823.
- *Marshallia'na* (Marshall's). 2. Yellow. July. Caucasus. 1816.
- *melampod'ia* (black-footed). 1. White. August. Egypt. 1819.
- *montana* (mountain). 1. Purple. July. Italy. 1759.
- *petraea* (rock). 1. White. July. Italy. 1825.
- *pubescens* (soft-haired). 1. White. July. South of Europe. 1803.
- *pyrethrum* (pellitory of Spain). 1. White. May. South of Europe. 1570.
- *rigescens* (rigescent). 2. White. August. Caucasus. 1805.
- *Rudolphia'na* (Rudolph's). 1. Yellow. July. Caucasus. 1824.
- *saxatilis* (rock). 1. White. July. Hungary. 1807.
- *tinctoria* (dyer's). 2. Yellow. June. Britain.
- *tomentosa* (downy). 1. White. July. Levant. 1795.

ANNUALS.

- A. altissima* (tallest). 4. White. July. South of Europe. 1731.
- *Austri'aca* (Austrian). 1. White. August. Austria. 1759.
- *Chi'a* (Chian). 2. White. June. Chio. 1731.
- *cota* (cota). 1. White. April. Italy. 1714.
- *discoi'dea* (discoid). 1. Yellow. June. Italy. 1800.
- *fallax* (uncertain). 1. White. July. 1825.
- *fusca'ta* (brown-scaled). 1. White. July. Portugal. 1805.
- *maritima* (sea). 1. White. July. Mediterranean. 1800.
- *mixta* (mixed). 1. White. August. France. 1731.
- *mucronulata* (hard-pointed). Italy. 1836.
- *Ruthénica* (Russian). 2. White. June. Taurida. 1823.
- *Triumfetti* (Triumfetti's). 1. Pale yellow. August. Switzerland. 1819.

EVERGREENS.

- A. nobilis* (noble. Common chamomile). 1. White. August. Britain.
- *flor'e-pleno* (double). 1. White. August. Britain.
- *punctata* (dotted). 1. White. August. Barbary. 1818. Biennial.

See CHAMOMILE.

ANTHE'PHORA. (From *anthos*, a flower, and *phoreo*, to bear. Nat. ord., *Grasses* [Graminaceæ]. Linn., 3-Triandria 2-Digynia.)

Seed in March or April. Peat and loam. They are pretty, and, with the exception of requiring a greenhouse in winter, as easily managed as any other grass.

- A. elegans* (elegant). Apetal. August. Jamaica. 1776.
- *villo'sa* (soft-haired). August. W. Ind. 1824.

ANTHE'RICUM. (From *anthos*, a flower, and *kerkos*, a hedge; in reference to the

tall flower-stems. Nat. ord., *Lilyworts* [Liliaceæ]. Linn., 6-*Hexandria* 1-*Monogynia*.)

Few orders of plants are less ably arranged by men of science, and still less understood by the gardener, than the "beautiful" Order of Lilies. With the exception of *A. serotinum* and *sulphureum*, which are hardy, they are mostly low, greenhouse, herbaceous plants, with tuberous and fleshy-bundled roots. Propagated by suckers, offsets, and seeds. Sandy loam, with abundance of drainage, and requiring the frame or greenhouse in winter. The genus *Bulbine* is now added to this.

- A. albucoides* (albuca-like). 1. White. July. Cape of Good Hope. 1788.
- *bipedunculatum* (two-peduncled). 1. White. May. Cape of Good Hope. 1825.
- *canaliculatum* (channelled-leaved). 1. White and green. May. Cape of Good Hope. 1774.
- — *rustum* (rusty). 1. Copper. June. Cape of Good Hope.
- *cæruleum* (bluish). Blue. May.
- *croceum* (saffron). 1. White. June. Cape of Good Hope. 1800.
- *falcatum* (sickle-shaped). 1. White. July. Cape of Good Hope. 1825.
- *filifolium* (thread-leaved). 1. White. May. Cape of Good Hope. 1820.
- *filiforme* (thread-form). 1. White. April. Cape of Good Hope. 1775.
- *flexifolium* (zigzag-leaved). 1. White. June. Cape of Good Hope. 1795.
- *floribundum* (many-flowered). 1. White. April. Cape of Good Hope. 1774.
- *fragrans* (sweet-scented). 1. White. May. Cape of Good Hope. 1795.
- *graminifolium* (grass-leaved). 2. White. June. Cape of Good Hope. 1794.
- *hirsutum* (hairy). 1. White. July. Cape of Good Hope. 1820.
- *longifolium* (long-leaved). 1. White. July. Cape of Good Hope. 1824.
- *pilosum* (long-haired). 1. White. July. Cape of Good Hope. 1825.
- *plumosum* (feather-petaled). 1. White. March. Chili. 1829.
- *pomeridianum* (afternoon). 2. White. June. Cape of Good Hope. 1819.
- *revolutum* (rolled-back). 2. White. October. Cape of Good Hope. 1731.
- *serotinum* (late-flowering). 1. White. July. Britain.
- *spirale* (spiral). 1. White. May. Cape of Good Hope. 1824.
- *squammeum* (scaly). 1. White. July. Cape of Good Hope. 1820.
- *sulphureum* (sulphur). 1. Purple, yellow. July. Hungary. 1823.
- *triflorum* (three-flowered). 1. White. September. Cape of Good Hope. 1782.
- *undulatum* (waved). 1. White. June. Cape of Good Hope. 1825.
- *vespertinum* (evening). 2. White. June. Cape of Good Hope. 1803.
- *villosum* (long-haired). 1. White. July. Cape of Good Hope. 1825.

ANTHOCEPIS. (From *anthos*, a flower, and *kirkis*, a ray. Nat. ord., *Figworts* [Scrophulariaceæ]. Linn., 14-*Didynamia* 2-*Angiospermia*.)

Cuttings of ripened wood in April, placed in

sand under a glass, set at first in a cool place, and afterwards placed in a mild bottom-heat. Sandy loam and peat, well drained. Summer temp., 55° to 65°; winter, 45° to 50°.

- A. albicans* (whitish-leaved). 3. White. June. N. Holland. 1825.
- *ilicifolia* (holly-leaved). 6. Yellowish-green. June. Swan River. 1843.
- *litorea* (shore). 3. White. June. N. Holland. 1803.
- *viscosa* (clammy). 6. White. May. N. Holland. 1822.

ANTHOCLEYSTA. (From *anthos*, a flower, and *cleistos*, shut up. Nat. ord., *Loganiads* [Loganeaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*.)

Cuttings in heat; peat and loam. Summer temp., 65° to 80°; winter, 55° to 66°.

- A. macrophylla* (long-leaved). 20. White. Sierra Leone. 1820.

A'NTHODON. (From *anthos*, a flower, and *odon*, a tooth. Nat. ord., *Hippocrateads* [Hippocrateaceæ]. Linn., 3-*Triandria* 1-*Monogynia*.)

Tropical evergreen shrubs; cuttings of half-ripened wood, under a bell-glass, in hotbed; sandy loam and peat. Temperature as for preceding genus.

- A. ellipticum* (elliptic). 12. Yellow, green. Rio Janeiro. 1818.
- *paniculatum* (panicled). 12. Yellow, green. Rio Janeiro. 1818.

ANTHELOMA. (From *anthos*, a flower, and *loma*, a fringe. Nat. ord., *Margraviads* [Margarviaceæ]. Linn., 13-*Polyandria* 1-*Monogynia*.)

A stove evergreen shrub; cuttings of ripe wood, under glass, in sand and in heat; light, rich loam. Temperature as for preceding.

- A. montana* (mountain). N. Holland. 1810.

ANTHOLYZA. (From *anthos*, a flower, and *lyssa*, rage; in reference to the opening of the flower like the mouth of an enraged animal. Nat. ord., *Irids* [Iridaceæ]. Linn., 3-*Triandria* 1-*Monogynia*.)

Bulbs requiring the assistance of a frame or greenhouse in winter, or to be planted deep enough beyond the reach of frost in a dry, sheltered situation; light, sandy soil; offsets. See *ANISANTHUS*.

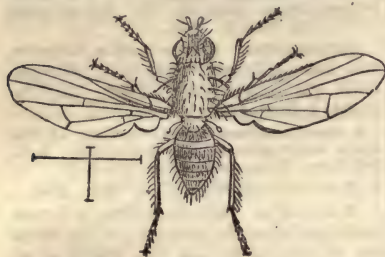
- A. æthiopica* (Ethiopian). 3. Scarlet and green. June. Cape of Good Hope. 1759.
- *montana* (mountain). 1. Brown. June. Cape of Good Hope. 1759.
- *pratensis* (very tall). Orange. February. Cape of Good Hope. 1759.

ANTHOMYIA, a genus of fly very injurious to the gardener. The principal species are the following:—

- A. ceparum* (onion-fly).

In light soils, especially, the onion is liable to suffer from the grub or larva of this fly (*Anthomyia ceparum*, or *Scato-phaga ceparum* of some writers). The

gardener who sees his young onions, when about the thickness of a straw, turning yellow, and the leaves sunk down upon the ground, may at once know that they are the victims of this insect. Even when of larger growth the onion is still liable to suffer from its attacks, and even up to the time of the bulb's full growth. If the outer coats of a young onion thus destroyed are stripped off, the grub is at once detected; but if the onion is older, the grubs are often numerous. In both cases they will be found feeding on the very heart of the onion. The grub varies from about a quarter to half an inch long, is fleshy, shining, whitish, cylindrical, tapering from the head to the tail, and divided into twelve segments. The pores through which it breathes are yellow, and in the first segment. In about three weeks from the time of being hatched it changes into a chesnut-coloured, oval puparium, or case, within which is the real pupa. From this, in about a fortnight, the perfect fly comes forth, of the size of the cross lines, and appearing as magnified in our drawing.



This is the female, and is entirely of a pale, ashy colour, covered with black bristles. The male has a black line down the middle of the abdomen. The antennæ and legs are black; the wings are transparent, almost colourless, but iridescent pink and green. The female inserts her eggs within the leaf-sheaths of the onion, close to the ground. She continues to lay her eggs from May to September, producing several broods during that period. The latest brood remains in the pupa state through the winter, so that all old-decaying store-onions should be burnt up as spring advances. The best preventive of this grub is to sprinkle gas-lime between the rows of seeding-onions, its fumes being offensive to the fly. It may be well, also, to try

spreading powdered charcoal among them in a similar way, for the fly is said to deposit her eggs in this powder as readily as in the onion-plants.

A. brassicae, cabbage-fly, says Mr. Curtis, is found through the summer, and is the parent of a maggot which has been known to lay waste whole fields of cabbages, by diseasing the roots on which they feed, as well as at the base of the stalk. Successive generations are feeding until November; the latter families lying in the pupa state through the winter, and most probably some of the flies survive that season, secreted in holes and crevices. When the cabbage-leaves assume a lead or yellow colour, and droop in mid-day from the effect of the sun, such plants, being diseased, should be taken up, carried away, and burnt, and brine or lime put into the holes. Gardeners, in some instances, have collected large quantities of the pupæ from the roots by drawing away the earth.

The male of *A. brassicae* is dark, bright grey, with black bristles; there is a black stripe half way down the middle of the thorax, and a curved one on each side; the body has a more decided black stripe down the centre, and the segments are marked by a line of the same colour: legs and antennæ blackish; wings a little smoky. The female is pale, ashy grey; the eyes remote, with a dark chesnut-coloured stripe on the crown; the wings are similar, in tint to those of the foregoing species, but the insects are considerably smaller.—*Gardener's Chronicle*.

A. lactuæ, lettuce-fly. Mr. Curtis says the larvæ make their appearance in August, but are abundant in September; they closely resemble those from the cabbage and turnips, being of a yellowish-white colour, tapering towards the head, which is pointed, and armed with two short, black claws at the nose. These maggots live in the involucre of different varieties of lettuce, feeding upon the seeds and receptacle; and when these are consumed, they wriggle themselves out backward, either to enter another seed-vessel or fall to the ground and become pupæ.

When the seed-stems are gathered and dying, the larvæ change to pupæ, called *shucks*, in Surrey, being bright chesnut-coloured, oval cases, which are rough, when examined under a lens, with two minute tubercles at the head, and two

hooks, and a few other tubercles at the tail. In the course of May a few of the pupæ hatch; they have, however, been observed as early as April, and as late as July. The male is intense black, clothed with short hair and bristles; the eyes reddish-brown, and meeting above; face inclining to chesnut-colour, with a bright spot of the same on the crown; the fore part of the trunk bears four varying whitish stripes; the body is ashy-grey, the segments blackish, at the base a deep black; wings two, stained with black, and beautifully iridescent; the base and poisers ochreous, the nervures of the wings pitchy.

The female is entirely ashy-grey, and less bristly; the eyes not meeting on the crown, with a bright chesnut-coloured stripe between them; body oval, the apex cone-shaped; horns and legs blackish; wings and nervures lighter than in the male, which it equals in size.—*Ibid.*

ANTHONY'MUS POMO'RUM. Apple Weevil. This insect shelters itself beneath the scurfy bark during the winter, awaiting the return of spring to renew its attacks upon the blossom-buds. "This insect," says Mr. Curtis, "commits great devastation in apple-orchards, by destroying the stamens, pistil, and receptacle of the flower. As soon as the blossom-buds swell, the female beetle begins to deposit her eggs. In calm weather, she selects a good bud, and makes a hole in it with her rostrum (long beak); she fixes herself at the hole, lays one egg, and goes on till she has deposited a considerable number of eggs in separate buds. The bud continues to swell, and the petals (flower-leaves) nearly expand, when suddenly the growth ceases, and the petals wither, and assume a shrivelled appearance. If one of these flower-buds be examined when nearly expanded, a small, white grub, with a black head, will be found in the centre, which begins to assume a yellowish colour; a few days later the grub will be found either wholly or partially changed to a beetle, and, should there be a small hole on the side of the receptacle, the beetle will have escaped, the transformation from the egg to the perfect state not having occupied more than a month. When this beetle, or weevil, leaves the receptacle, it feeds during the summer on the leaves of the trees, and is seldom to be seen. In the autumn, the weevils leave the trees and

search for convenient hiding-places, under stones about the trees, or under the rough bark, in which they pass the winter. Consequently, as they commence their operations early in the spring, care should be taken to remove all stones, dead leaves, and other litter from under the trees, as well as to scrape off the rough, dead bark from them in the winter season. The apple-weevil is also very injurious to pear trees. This beetle, or



weevil, is scarcely one line and a half long; its wing-cases are dark brown, with whitish-grey stripes; its antennæ (horns or feelers) spring from the middle of its beak, and all these parts, as well as its eyes and the under part of the body, are black."

There are several nearly-allied species of predatory weevils, which will be found under the name of CURCULIO.

ANTHOSPERMUM. (From *anthos*, a flower, and *sperma*, seeds. Nat. ord., *Cinchoniads* [Cinchoniaceæ, formerly Rubiaceæ]. Linn., 22-Diacia 4-Tetrandria.)

Cuttings in sand, under a bell-glass; peat and loam; summer temp., 50° to 65°; winter, 40° to 45°.

A. Æthiopicum (Ethiopian). 2. Green and white. June. Cape of Good Hope. 1692.

ANTHURIUM. (From *anthos*, a flower, and *oura*, a tail; referring to the spadix. or Arum flower-spike. Nat. ord., *Orontiads* [Orontiaceæ]. Linn., 4-Tetrandria 1-Monogynia. Allied to Pothos.)

Stove Epiphytes. Sucker; peat and loam. Temp. in summer, 60° to 85°; winter, 50° to 55°.

A. longifolia (long-leaved). 1. Apetal. Mexico. 1829.

— *rube-scens* (reddish). Brown. September. Brazil. 1828.

There are five other species, but undeserving cultivation.

ANTHYLLIS. (From *anthos*, a flower, and *ioulos*, down; literally, downy flower. Nat. ord., *Leguminous Plants* [Faba-

ceae]. Allied to Trefoil. Linn., 16 *Monadelphia* 6-*Decandria*.)

Seeds, division of roots, cuttings; the hardy perennial and annual species like a light, well-drained soil; the greenhouse varieties should have a little peat.

HARDY ANNUALS.

- A. cornici'na* (crow). 1. White. July. Spain. 1759.
- *hamo'su* (hooked). 1. Pale yellow. July. Barbary. 1821.
- *lotoid'es* (lotus-like). 1. Yellow. July. Spain. 1739.
- *tetraphy'lla* (four-leaved). 1. Yellow. July. South of Europe. 1640.

GREENHOUSE EVERGREENS.

- A. aspal'athi* (aspalathus-like). 1. Yellow. July. Cape of Good Hope. 1824.
- *bar'ba Jo'vis* (Jupiter's beard). 3. Pale yellow. April. South of Europe. 1640.
- *cytiso'id'es* (cytissus-like). 2. White. June. Spain. 1731.
- *echina'ta* (hedgehog). 1. Purple. June. South of Europe.
- *erina'cea* (prickly). 1. Purple. May. Spain. 1759.
- *Hermann'ia* (Hermann's). 2. Yellow. July. Levant. 1739.
- *heterophy'lla* (various-leaved). 1. Pink. July. South of Europe. 1768.
- *tenuifolia* (fine-leaved). 2. Yellow. July. Cape of Good Hope. 1818.

HERBACEOUS PERENNIALS.

- A. alp'ina* (hairy-alpine). 1. Yellow. August. Britain.
- *Dillenii* (Dillenius's). $\frac{1}{2}$. Red. July. South of Europe. 1816.
- *Gera'rdi* (Gerard's). 1. White. August. Provence. 1806.
- *monta'na* (mountain). 1. Purple. July. South of Europe. 1759.
- *alba* (white). 1. White. July. South of Europe. 1818.
- *onobrycho'id'es* (Saint Foix-like). 1. Yellow. July. Spain. 1817.
- *polyce'phala* (many-headed). 1. Yellow. July. Barbary. 1829.
- *polyphy'lla* (many-leaved). 1. Yellow. July. South of Europe. 1816.
- *vulnera'ria* (common woundwort). 1. Yellow. July. Britain.
- — *albiflo'ra* (white-flowered). 1. White. July. Britain.
- — *hirsutiss'ima* (very hairy). $\frac{1}{2}$. Red. July. Europe. 1816.
- — *rub'ra* (red-flowered). 1. Red. July. Britain.
- *Webb'ina* (Webb's). 1. Pale rose. Tenerife. 1829.

ANTI'ARIS. (From *antja*, its Java name. Nat. ord., *Atrocarpads* [*Atrocarpaceae*]. Linn., 21-*Monœcia* 4-*Tetradynamia*. Allied to *Brosimum*.)

This is the fabled upas-tree of Java, which furnishes the "Antjar poison." As if to prove the saying that reality is more strange than fiction—at least in botany—the very nearest plant in affinity to this deadly-poisonous tree is the cow-tree of South America, whose milky juice is as wholesome as that of an "Alderney," and the bread-fruit-tree is also closely allied to the upas. A stove tree; cuttings of rather firm wood, in sandy

soil, under a bell-glass, and in bottom-heat. Sandy peat and fibry loam. Summer temp., 60° to 85°; winter, 55° to 60°.

A. toried'ria (poisonous). 40. Green. Java. 1844

ANTIGRA'MMA. (From *anti*, like, and *gramma*, writing; in reference to the appearance of the spore-cases, or seed-vesicles. Nat. ord., *Ferns* [*Polypodiaceae*]. Linn., 24-*Cryptogamia* 1-*Filices*. Allied to *Scolopendrium*.)

A greenhouse Fern. Divisions; peat and loam. Temp. in summer, 55° to 75°; winter, 45° to 50°.

A. rhyzophy'lla (rooting-leaved). Brown. May.

ANTIRRH'NUM. (From *anti*, like, and *rhin*, a snout, or nose; flowers like the snout of an animal. Nat. ord., *Figworts* [*Scrophulariaceae*]. Linn., 14-*Tetradynamia* 2-*Angiospermia*.)

Grow freely from seed sown in spring; the best varieties by cuttings, inserted in sandy soil, under a hand-light. Common soil, if not retentive of moisture. All hardy herbaceous perennials, except when otherwise specified. Excellent for banks and under trees, but above either for the tops of walls. The varieties are endless.

- A. angustifol'ium* (narrow-leaved). 2. Pink. August. Europe. 1817.
 - *asar'ina* (asarina). 1. White. July. Italy. 1699. Half-hardy evergreen trailer.
 - *calyc'eum* (large-calyxed). 1. Red. July. Spain. 1810. Hardy annual.
 - *glandulo'sum* (glandular-haired). 2. Roan, yellow. September. California. 1834. Hardy annual.
 - *ma'jus* (greater). 2. Pink. July. England.
 - — *bi'color* (two-coloured). 2. White. July. England.
 - — *cocc'ineus* (scarlet-flowered). 2. Scarlet. July. England.
 - — *flore-pl'e'no* (double-flowered). 2. Flesh. July. England.
 - — *variegat'um* (variegated-leaved). 2. Red. July. England.
 - *me'dium* (intermediate). 2. Pink. August. Europe. 1821.
 - *meand'anthum* (smaller-flowered). 2. Pink. August. South of Europe. 1817.
 - *mo'lle* (soft-leaved). 1. White. August. Spain. 1752. Half-hardy evergreen trailer.
 - *Montevide'ense* (Monte Videan). 1. Red. Monte Video. 1829. Hardy annual.
 - *ochroleuc'um* (pale yellow). 4. Pale yellow. July.
 - *oro'nium* (orontium). 1. Flesh. August. Britain. Hardy annual.
 - *sempervi'rens* (evergreen). 2. Pink. August. Pyrenees. 1821.
 - *Sic'ulum* (Sicilian). 1. White. July. 1804.
 - *tortuo'sum* (twisted). Purple. June. Italy.
- ANTLER MOTH.** See *CERA'PTERYX*.
- ANTRO'PHYUM.** (From *atron*, a cavern, and *phio*, to grow; referring to its place of growth. Nat. ord., *Ferns* [*Polypodiaceae*]. Linn., 24-*Cryptogamia* 1-*Filices*.)
- Stove Ferns. Division of the roots; sandy loam, in a shady situation.
- A. Cayenne'ense* (Cayenne). Brown. Cayenne.
 - *coriac'cum* (leathery). Brown.

- A. lanceolatatum* (lance-leaved). Brown. August. W. Ind. 1793.
 — *latifolium* (broad-leaved). Brown. Island of Luzon.
 — *obtusum* (blunt-leaved). Brown. Island of Luzon.
 — *reticulatum* (netted). Brown.
 — *semicostatum* (half-ribbed). Brown. Island of Luzon.

ANTWERP HOLLYHOCK. *Althæa ficifolia*.

AO'TUS. (From *a*, not, and *ous*, ear; the ear-like appendages to the calyx are wanting. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 10-*Decandria* 1-*Monogynia*.)

Greenhouse small evergreen shrubs. Seeds sown in heat. Cuttings of half-ripened wood in April, in sand, under a bell-glass. Sandy loam and peat, with a little charcoal.

- A. gracilis* (slender). April. N. Holland. 1830.
 — *gracillimus* (most slender). 3. Yellow, crimson. May. N. Holland. 1844.
 — *incana* (hoary). 2. Yellow. June. N. Holland. 1824.
 — *lanigera* (woolly). Crimson, yellow. April. Moreton Bay. 1838.
 — *villosa* (soft-haired). 2. Yellow. June. N. Holland. 1790.
 — — *ericoides* (heath-like). 2. Yellow. June. N. Holland. 1810.
 — — *ferruginea* (rusty). 2. Yellow. June. N. Holland. 1820.
 — — *virgata* (twiggy). 2. Yellow. June. N. Holland. 1824.

APA'RGIA. (A Greek name of a plant now unknown. Nat. ord., *Composites* [Asteraceæ]. Linn., 19-*Syngenesia* 1-*Æqualis*.)

Allied to Succory. Common treatment in border. Division of roots.

- A. aurantiaca* (orange-coloured). 1. Orange. June. Hungary. 1816.

The above hardy herbaceous perennial is the only one worth cultivating, though there are many other species.

APET'BA. (The local name of one of the species in Brazil. Nat. ord., *Lindenblossoms* [Tiliaceæ]. Linn., 13-*Polyandria* 1-*Monogynia*.)

Tropical evergreen trees and shrubs. Cuttings of ripe wood, under a glass, in strong heat; peat and loam. Should be curbed in the Chinese fashion, by pruning their roots, &c.

- A. aspera* (rough-capsuled). 30. Yellow. Cayenne. 1792.
 — *laevis* (smooth-leaved). 10. Green. Cayenne. 1817.
 — *Petoumo* (Petoumo). 40. Yellow. S. Amer. 1817.
 — *Tibourbou* (Tibourbou). 7. Yellow. S. Amer. 1756.

APHELA'NDRA. (From *apheles*, simple, and *aner*, a male; the anthers being one-celled. Nat. ord., *Acanthads* [Acanthaceæ]. Linn., 14-*Didynamia* 2-*Angiospermia*.)

Stove evergreen shrubs. Allied to *Justicia*.

Cuttings of small side-shoots, taken off in March or April, inserted in very sandy peat, under a bell-glass, and in a strong bottom-heat. Rough loam and peat, well drained, and liberally supplied with water during summer, until flower-buds appear; kept dryer and cool during winter. Summer temp., 65° to 80°; winter, 55° to 60°; but 10° less will do. A full account of the culture of this genus is given in *The Cottage Gardener*, iv. 395.

- A. aurantiaca* (orange-coloured). 3. Orange, scarlet. December. Mexico. 1844.
 — *cristata* (crested). 3. Scarlet. August. W. Ind. 1733.
 — *fulgens* (glowing). 1½. Orange. Autumn. 1847.
 — *glabrata* (smooth-leaved). 1½. Yellow. Autumn. S. Amer. 1848.
 — *tetragona* (four-angled). 2. Autumn. 1846.

APHELE'XIS. (From *apheles*, simple and *exis*, habit. Nat. ord., *Composites* [Asteraceæ]. Linn., 19-*Syngenesia* 2-*Superflua*.)

Greenhouse evergreen shrubs. Allied to *Helichrysum*. Cuttings in spring or summer; small side-shoots are best, ripened, but not hard, inserted in sand, under a bell-glass. Summer temp., 55° to 65°; winter, 40° to 47°.

- A. ericoides* (heath-like). 1. White. June. Cape of Good Hope. 1796.
 — *fasciculata* (fascicled). 2. Purple, yellow. June. Cape of Good Hope. 1799.
 — — *alba* (white-flowered). 2. White. July. Cape of Good Hope. 1799.
 — — *rubra* (red-flowered). 2. Red. July. Cape of Good Hope. 1799.
 — — *versicolor* (party-coloured). 2. Variegated. July. C. G. Hope. 1799.
 — *humilis* (dwarf). 2. Pink. May. Cape of Good Hope. 1810.
 — — *macrantha* (large-flowered-dwarf). 2. Purple. N. Holland. 1840.
 — — *rosea* (rose-large-flowered-dwarf). 2. Rose. Gardens. 1845.
 — — *purpurea* (purple-large-flowered-dwarf). 2. Purple. N. Holland. 1840.
 — *sesamoides* (sesamun-like). 2. Purple. white. May. Cape of Good Hope. 1739.

APHIS. The plant-louse, or green fly; called sometimes the *puceron*, or vine-fretter. It is usual to consider that every plant liable to be attacked by this insect is the victim of some especial species; but we think that further examination will reduce the number of species very considerably. Difference in colour certainly does not constitute a specific difference; for the rose-louse is green when the shoots of the rose are green, but red when the shoots are of this colour. The amount of injury they cause to a plant, by robbing it of its sap or blood, is proportioned to their number, and the time they are allowed to infest the subject of their attack; and the amount of that injury may be appreciated by the fact that the hop-duty is often £408,000; but the hop-louse (*Aphis*

humuli) frequently so destroys the crop as to reduce it to a little more than £15,000. The green fly on our roses (*Aphis rosæ*) is that of which we will now offer a few particulars. It is curious that these always are most abundant after the prevalence of easterly winds; and Mr. Jenyns observed in Cambridgeshire, during October, and Mr. White, at Selborne, in August, myriads of aphides, in both instances, after the wind had been for some time easterly. So fast do they multiply, twenty generations being producible in one year, and the young in the autumn being born alive, and not from an egg, Reaumur has shown that one female may be the ancestor of nearly six millions in five generations! It is needless to describe minutely the rose aphid. It is usually light green, with green wood; and red, with red wood, with brown antennæ and legs, and transparent iridescent wings. They frequently change their skins; and these may be seen hanging about the leaves and shoots of the rose. The males may be known by a double row of black dots on each of their sides. The most effectual of all applications for their destruction is tobacco smoke; and the best mode of applying it is to cover the bush with a sheet, and fill the space enclosed with the smoke, by means of Brown's fumigator.



Aphis pyrami is of a grass-green colour, attacking the apple and pear. To prevent its appearance, the following treatment is said to be very effectual. The application must be made *every other* if not *every year*; but once in two years may be sufficient, if *thoroughly* well done. Take 1 lb. sulphur vivum, 1 lb. Scotch snuff, 1 lb. quicklime, $\frac{1}{2}$ lb. lampblack, 1 lb. soft soap, and of water sufficient to make it into the consistence of paint. Unnail your trees about February, before the bloom-buds begin to swell, and with a common paint-brush paint every branch from the ground upwards.

A. persicæ is dark green, and is peculiar to the peach and nectarine.

A. pruni ravages the plum tribes, and is a very light green.

A. fabæ, known popularly as the *Black Dolphin* and *Elephant*, is black, and attacks the common bean. The tops of beans attacked by the black dolphin should be forthwith removed; and smaller plants may be syringed with tobacco-water, or water in which elder-leaves have been boiled; which applications are all fatal to the aphid; syringing with soap-suds, on two or three following days, is also effectual.

A. pisi is green, and affects the pea.

A. lonicera, woodbine louse. Dingy green.

A. cerasi, Morello cherry louse. Appears black. Infests the under sides of the leaves, especially on wet soils.

A. coryli, nut louse. Pale green.

A. dahlia, dahlia louse. Amber-coloured.

A. ribis, red-currant louse. Blackish.

A. ligustri, privet louse. Dark brown.

A. ribis-nigri, black-currant louse. Transparent green.

A. lathyri, sweet-pea louse. Dark purple.

A. (Cinara) raphani, radish louse. Females, green; males, lightish-red.

The aphides on the peach appear the earliest, being, as are all the others, the produce of eggs deposited during the previous autumn. During the spring and summer they are viviparous, and breed with extraordinary rapidity. The gardener does well, therefore, to scrub the branches of his wall-trees, and to boil or change the shreds every winter, for he thus destroys the pest in embryo. So soon as they appear in spring, over each wall-tree a mat should be fastened, and tobacco, in some mode, burnt beneath it. Peas, whilst the dew is upon them, may be dusted with Scotch snuff. Over the apple, plum, and other standards, the only available remedy is a repeated application of quicklime, at the same early period of the day, by the means of Curtis's lime-duster.

The larvæ of the *Coccinella* or Lady-bird, especially *C. punctata*, the *Syrphus*, or bee-like fly, the *Hemerobius perla*, or golden-eyed fly, the ant, some caterpillars, and many of the *Ichneumonidæ*, are great destroyers of the aphid, and should be encouraged rather than removed. See AMERICAN BLIGHT.

The following directions are applicable to the destruction of every kind of aphid. When you intend to fumigate your plants,

in a house, pit, or frame, choose a still evening, and let your plants be quite dry. Place them closer together, and in the clear space thus obtained put either an iron pan, or, if you have not such a thing, use a hard-burnt garden-pot; put in it a few red-hot cinders that do not smoke; upon those cinders put your tobacco, or tobacco-paper, rather damp. A cloud of smoke will immediately rise, and will soon fill the frame. Brown's fumigator is an excellent instrument for applying tobacco-smoke. As soon as you judge it to be well filled with smoke, remove the pan, or pot, and carry it to the next frame, if you have more than one that requires smoking. Be extremely careful that the tobacco does not break out into a flame, as it is that which does the mischief. If you perceive a likelihood of blazing out, prevent it with a sprinkling of water, very gently applied. Cover up the frames with mats to keep in the smoke as long as possible. The next morning examine the aphides, or green flies, and if you find any alive repeat the smoking the following evening. This second application will most effectually destroy all your enemies. You may now syringe the plants pretty severely, to wash away the dead bodies of the slain, and the plants will again thrive and flourish in perfect health and beauty.

The green fly on plants out of doors, so situated that the smoke of tobacco cannot be so perfectly confined as to destroy them, require a different mode of attack, though the same herb furnishes us with a remedy against the foe, only it must be applied in a different form; that is, as tobacco-water. This can be had at any tobacco manufactory, or it may be made by steeping 4 oz. of tobacco in a gallon of water; let it stand in the water for a week or so, occasionally stirring it with the hand, and squeezing the tobacco, to bring out the strength. It will then be very powerful, and perhaps will bear an addition of water, previously to using, to the extent of one-half. Apply it to standard roses, by dipping the infested branches in it during a dry evening, and syringing them the next morning. For roses on pillars, or against walls, use the syringe filled with clear liquor, and applied gently all over the shrubs. Verbenas and Calceolarias in beds are often, during the summer months, much injured, and their beauty deteriorated, by

these insects; also roses in beds suffer much from the same cause. We know no better remedy than the above-mentioned tobacco-water, applied with a syringe or fine-rosed water-pot.

APHYLLANTHES. (From *aphyllos*, leafless, and *anthos*, a flower; the flowers on rush-like branches. Nat. ord., *Lilyworts* [Liliaceæ]. Linn., 6-Hexandria 1-Monogynia.)

Half-hardy herbaceous perennial. Division of the roots and seeds; sandy peat; requires a warm situation, or a cold pit in winter.

A. Montpelie'nsis (Montpelier). Red. South of France. 1791.

A'PICRA. (From *apicros*, not bitter.)

Greenhouse succulents, a section of the genus *Aloe*; suckers and cuttings; sandy loam. Summer temp., 55° to 70°; winter, 35° to 45°; kept rather dry.

A. a'spera (rough). 1. Grey. June. Cape of Good Hope. 1795.

— *aspe'rula* (roughish). ½. Grey. June. Cape of Good Hope. 1824.

— *bicarina'ta* (double-keeled). 1. Grey. June. Cape of Good Hope. 1820.

— *bullula'ta* (little-blistered). 1½. Grey. May. Cape of Good Hope.

— *foliolo'sa* (small-leafy). 1. Grey. July. Cape of Good Hope. 1795.

— *imbrica'ta* (imbricated). 1½. Grey. June. Cape of Good Hope. 1731.

— *ni'gra* (rough black). ½. Grey. July. Cape of Good Hope. 1823.

— *pentago'na* (five-angled). 1½. Grey. June. Cape of Good Hope. 1731.

— — *to'rta* (twisted). 1. Grey. June. Cape of Good Hope. 1800.

— *ri'gida* (rigid). ½. Grey. June. Cape of Good Hope. 1820.

— *spira'lis* (great spiral). 1. Grey. June. Cape of Good Hope. 1790.

— *spire'lla* (small spiral). 1½. Grey. June. Cape of Good Hope. 1808.

A'PIOS. (From *apion*, a pear; in reference to the form of the roots. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 17-Diadelpchia 4-Decandria.)

Hardy tuberous-rooted plant, allied to *Glycine*. Division of roots; sandy loam, with a little peat.

A. tubero'sa (tuberous-rooted). 6. Brown, pink. August. N. Amer. 1640.

A'PIUM. (From *apon*, Celtic word for water; water-plant. Nat. ord., *Umbellifers* [Apiaceæ]. Linn., 5-Pentandria 2-Digynia.)

Allied to Parsley. Seeds, spring, and superior, rich soil, for the culinary kinds; common soil for others. See *CELERY*.

A. Chile'nsae (Chilian). 1. White. Chili. 1836.

— *grave'olens* (strong-smelling Celery). 4. White. July. Britain.

APLE'CTRUM. (From *a*, not, and *plektron*, a spur; the flower spurless. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-Gynandria 1-Monandria.)

Hardy orchid; offsets; sandy peat.

A. hiemale (wintry). 1. Brown. N. Amer. 1827.

APO'CYNUM. (From *apo*, from, and *kyon*, a dog; poisonous to dogs. Nat. ord., *Dogbanes* [Apocynaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*.)

Hary herbaceous perennials. Suckers, division and seeds; common garden-soil.

A. androsæmifolium (tutsan-leaved). 2. Striped. August. N. Amer. 1688.

— *canna'binum* (hemp-like). 3. Yellow. August. N. Amer. 1699.

— *hypericifolium* (hypericum-leaved). 2. White. June. N. Amer. 1758.

— *Venetum* (Venetian). 2. White. June. Adriatic Islands. 1690.

APONGETON. From *apon*, Celtic for water, and *geiton*, neighbour; indicating its places of growth. Nat. ord., *Arrow-grasses* [Juncaginaceæ]. Linn., 6-*Hexandria* 3-*Trigynia*.)

Aquatics, kept in a vessel of water, in stove or greenhouse, according to their native localities, but all thriving in the stove; offsets, loam and peat.

A. angustifolium (narrow-leaved). 1. White. July. Cape of Good Hope. 1788. Greenhouse.

— *crispum* (curled-leaved). 1. White. August. Ceylon. 1820. Stove.

— *distachyon* (two-spiked). 1. White. June. Cape of Good Hope. 1788. Greenhouse.

— *juncifolium* (rush-leaved). White. 1847. Stove.

— *monostachyon* (simple-spiked). 1. Pink. September. E. Ind. 1803. Stove.

APPLE. *Pyrus malus*.

Varieties.—There are 1,496 named varieties in the last edition of the London Horticultural Society's List of Fruits, of which they have 897 cultivated in their gardens. The following are good selections:—

Espalier and dwarf. Dessert kinds.—Lamb-abbey pearmain; Hick's fancy; Kerry pippin; Sturmer pippin; Ribston pippin; Pitmaston nonpareil; Old nonpareil; Braddick's nonpareil; Scarlet nonpareil; Pearson's plate; Court-penduplat; Court of Wick; Golden drop; King of pippins; Margille; Golden reinette; Reinette du Canada; Adam's pearmain; Boston russet; Baddom, or spring Ribston pippin; Early harvest; Early Margaret; Golden Harvey.

Standard. Dessert.—Hick's fancy; Kerry pippin; Pitmanton nonpareil; Court of Wick; King of pippins; Golden reinette; Adam's pearmain; Boston russet; Early harvest; Early Margaret; Summer pippin; Ribston pippin.

Espaliers and dwarfs. Kitchen.—Hawthornden; Alfriston; Pitmaston nonpa-

reil; Manks codling; Wareham russet; Blenheim orange; Chappell; Keswick codling; Waltham-abbey seedling.

Standard. Kitchen.—Northern greening, or John; Manks codling; Chappell; Wareham russet; Blenheim orange; Normanton, or Dumelow's seedling; Keswick codling; Hawthorden; Bedfordshire foundling; Reinette du Canada; Emperor Alexander; Dutch codling; Wormsley pippin; Waltham-abbey seedling; Alfriston.

For walls.—Ribston pippin; Old nonpareil; Newtown pippin; Sturmer pippin.

Propagation by seed.—Sow in autumn the largest and most convex seeds, of a favoured variety, in pots or border of light, rich loam; bury the seed an inch deep; if in a border, six inches apart each way. Mr. Loudon says, "The end of the first year they should be transplanted into nursery rows, from six inches to a foot apart every way. Afterwards they should be removed to where they are to produce fruit; and for this purpose the greater the distance between the plants the better. It should not be less than six or eight feet every way. The quickest way to bring them into a bearing state, Mr. Williams of Pitmaston considers, is to let the plants be furnished with lateral shoots, from the ground upwards, so disposed as that the leaves of the upper shoots may not shade those situated underneath, pruning away only trifling shoots. He adopted this mode, and succeeded in procuring fruit from seedling apples at four, five, and six years of age, instead of waiting eight, ten, and even fifteen years, which must be the case by the usual mode of planting close, and pruning to naked stems."

The advice of Mr. Williams is very good; but we must remind our readers that most of our shy, flowering, arboresecent or shrubby plants or trees are the soonest brought to blossom by first encouraging a high amount of luxuriance, and then inducing a severe check by root-pruning. By such means, carefully carried out, there can be no doubt that seedling apples may be made to blossom in four years. The check may either consist in a severe root-pruning, or the plants may be transplanted; taking care to prune away all taper-forked roots, and using all possible means to encourage surface fibres.

We may add here, that the less prun-

ing of the shoots the better; the knife is a great enemy to early fruitfulness in young trees, especially codlings.

Most good cultivators—and we believe we may include the highly-scientific authority of the late Mr. Knight, of Downton—prefer grafting the shoots of seedling Apples, when two years old, on very old, healthy, and fine-bearing kinds. In doing so, the extremities of the best branches should be chosen, as, also, the lightest portion of the tree, which should stand in a sheltered and warm situation.

Mr. Knight states, that “the width and thickness of the leaf generally indicate the size of the future apple, but will by no means convey any correct idea of the merits of the future fruit. When these have the character of high cultivation, the qualities of the fruit will be far removed from those of the native species; but the apple may be insipid or highly flavoured, green or deeply coloured, and, of course, well or ill calculated to answer the purposes of the planter. An early blossom in the spring, and an early change of colour in the autumnal leaf, would naturally be supposed to indicate a fruit of early maturity; but I have never been able to discover any criterion of this kind on which the smallest dependence may be placed. The leaves of some varieties will become yellow, and fall off, leaving the fruit green and immature; and the leaves in other kinds will retain their verdure long after the fruit has perished. The plants whose buds in the annual wood are full and prominent, are usually more productive than those whose buds are small and shrunk in the bark; but their future produce will depend much on the power the blossoms possess of bearing the cold; and this power varies in the varieties, and can only be known from experience. Those which produce their leaves and blossoms rather early in the spring are generally to be preferred; for, though they are more exposed to injury from frost, they less frequently suffer from the attacks of insects—the more common cause of failure. The disposition to vegetate early or late in the spring is, like almost every other quality in the Apple-tree, transferred in different degrees to its offspring; and the planter must therefore seek those qualities in the parent-tree which he wishes to find in the future seedling plants. The best method I have

been able to discover of obtaining such fruits as vegetate very early in the spring, has been by introducing the farina of the Siberian crab into the blossom of a rich and early apple, and by transferring, in the same manner, the farina of the Apple to the blossom of the Siberian crab. The leaf and the habit of many of the plants that I have thus obtained possess much of the character of the Apple, whilst they vegetate as early in the spring as the crab of Siberia, and possess at least an equal power of bearing cold; and I possess two plants of the family which are quite as hardy as the most austere crab of our woods.”

By grafting.—Stocks of the Crab and Apple are raised from kernels; but the Codling and Paradise stocks must be raised by cuttings and layers. Sow in autumn, in beds of light earth, moderately thick, in drills, covering them full half an inch deep; they will come up in the spring, when, if the season proves dry, water them occasionally, which will greatly forward the seedlings, and strengthen their growth; and in autumn, winter, or spring following, they may be planted out in nursery rows, previously shortening their tap-roots, and planting them in lines two feet and a half asunder, and one foot in the rows; and, after having from one to two or three years' growth here, they will be fit for grafting, particularly if for dwarfs, or even for full and half standards, if it is intended to form the stem from the graft, which is an eligible method for these trees; but, if the stock is to form the stem, they will require three or four years' growth to rise to a proper height; seven feet for full, and four or five for half-standards. When these trees are intended for full-sized orchard standards, with strong stems, the too common practice of pruning close all side-branches, as they spring from the stem, cannot be too strongly deprecated. A regular series of these should be left up the stem at least for one year after their production, practising what is termed “spurring-in” by our nurserymen, at the first winter's pruning after their production. Indeed, in the second year, if any stout stems are required, we would only totally remove one-half; and instead of performing this operation in the winter, we would leave it until near midsummer; for recent wounds heal, and skin over much nicer

at that period than during the season of rest.

Before quitting the subject of grafting, it may be well to offer a few plain directions on that head. Presuming that *stocks*, duly cultivated and prepared, exist, the first thing is to provide *scions*; that is, a part of the kind intended to be grafted on the stocks. It is, and has been, a maxim, for perhaps centuries, to procure these long before what is termed the "rising of the sap;" that is to say, during the resting season.

Such, then, being procured during the end of January, or through February, they are "heeled;" that is, after being correctly labelled, and tied in bundles, they are placed in the earth, in a cool and damp situation, where neither sun nor wind can penetrate. Here they lie until wanted. There appears to have been originally more than one reason for this procedure. A pressure of spring-business, even in former days, would suggest this practice, and it would soon be discovered that these retarded scions possessed real advantages; the principle of which appears to be the certainty of nourishment the moment that they are placed in the parent plant, or, at least, as soon as their absorbing powers are fully in action, which will be the case in a day or two. The parent stock is thus much in advance of them; and a root-action has already commenced, which is capable of supplying their utmost need. The period of grafting is determined by the rising of the sap; and this is indicated, in deciduous trees, by the enlargement of the buds, which generally takes place in the early part of March, in Britain. We consider that the buds of the stock should be near bursting their skin, or hybernatory, before grafting should take place.

This, of course, will differ, in different fruits, as differ their degrees of precocity. For details of the process, *see* GRAFTING.

By cuttings.—All the varieties may be raised in this mode, though some, as the Burr-knot, Codling, and June-eating, more readily than others. Trees so raised are said to be not so liable as their parents to canker. In February take cuttings of the young shoots from some of the horizontal branches, about eight inches long, cutting off a portion of the old wood of the branch attached to the shoot;

remove all the buds except the upper three. Plant these firmly in sandy loam, giving water, and covering with a hand-glass, until the cuttings have well vegetated. Shade from the mid-day sun; remove the hand-glass in July, and get the plants into the nursery early in November.

Soil.—The Apple prefers a deep and strong or adhesive loam. The colour is not so very material, providing such rest on a sound subsoil, free from water lodgments. If it is not so naturally, draining must be had recourse to, or it will be vain to expect success. They are, nevertheless, cultivated with considerable success on any ordinary garden-soil; and even on soils of a peaty character we have known them succeed tolerably well; but, in the latter case, the peat must be previously solidified by drainage, culture, &c., for a few years, for we have never known them succeed on raw, elastic peats. Improved peats, indeed, will in due time approach the character of common, dark, garden-soils; and it becomes expedient for the Apple to introduce both marl and clay, and also sand. Whenever a suspicion exists of an ungenial subsoil, the best plan is to plant on stations; which, indeed, is the best plan to adopt in all kitchen-gardens, where the object is to get great variety in small compass, or to induce early bearing. *See* article STATIONS.

Planting.—The soil should be trenched, and immediately beneath each tree, according to the extent of its roots, chalk, stones, or brickbats rammed so as to form a kind of pavement, to direct the roots horizontally. Plant so that the roots nearest the surface are twelve inches below it. *See* STATIONS.

Espaliers.—When first planted, the young plant is cut down to within about a foot of the ground, and only three shoots permitted to spring from it, one of which will be the leader, and the others will form the first or lower tier of bearing branches, which are to be secured to small stakes, so as to keep them in their proper places.

The following season the upright leader must be shortened to nine inches or a foot above the two horizontal branches, and deprived of all its shoots, excepting the three uppermost, which are to be treated the same as before. In this way the leading shoot is to be stopped at the requisite distance above the horizontal

ones, until it has reached the height of five feet. It is then cut off, and no more allowed to grow upright, the whole strength of the tree being directed to the fruiting branches.

Espalier Apple-trees should be planted at not less than twenty feet distance; but five-and-thirty feet is better, especially for trees grafted on Crab or Apple-stocks, which are free growers. For trees grafted on Codling or Paradise stocks, eighteen or twenty feet may be a sufficient distance. They should be planted with their heads entire, only removing any very irregular growths that do not range consistent with the intended form, and pruning any broken roots; as, also, the points of immature wood. Let all the branches be trained horizontally to the right and left, an equal number on each side, all at full length, five or six inches asunder; and, according as they shoot in summer, still continue them along entire. At the same time, train in a further supply of new shoots, to increase the number of horizontals, or bearers; and thus continue increasing their numbers every year, till the espalier is regularly filled from the bottom to the top, preserving all the branches at full length, as far as the allotted space will admit.

They must have a summer and a winter pruning annually. In the summer, cut out all the superfluous and ill-placed shoots of the year, and train regular ones towards the lower parts in vacant spaces, at least to remain till winter, some of which may then be wanted to fill some unforeseen vacancy, clearing out all others at this time as close as possible; and in winter, if any worn-out or decayed parts appear, then is the time to retrench them, retaining young branches in their places, and if any vacancy occurs, retain some contiguous young shoot to fill it. Cut clean and close to the branches, still continuing all the branches, and any occasional supply of shoots, at full length, as far as their limited bounds will allow; then train the whole regularly, tying them in as straight and close to the railing as possible, about six inches asunder.

Standards, Half-Standards, and Dwarfs.

—The standards having been trained in the nursery, with tolerably good heads, they should be planted with those heads nearly entire, merely pruning away late growths, and occasionally shortening, to

produce new shoots when desirable. If any are intended for the kitchen-garden, plant them, at least, forty feet distance; and, for a full plantation, to form an orchard, allow thirty feet distance every way.

Trim any broken or tap-roots, but leave all the others entire.

As soon as planted, let every one be well staked, to support them firmly upright, and prevent their being disturbed in rooting by winds.

Smaller-growing standards, such as Codlings and dwarfs upon Paradise stocks, may, if required, be planted only at twenty feet distance, or even less, though, if there is room to allow a greater distance, it will be the greater advantage.

Let them also, in future, advance with all their branches at full length, taking their own natural growth, and they will soon form numerous natural spurs in every part for bearing.

With respect to pruning these standards, very little is required, probably not more than once in three years, and then only the retrenching any very irregular, cross-placed bough, or reducing to order any very long Rambler; or, when the head is become greatly crowded and confused, to thin out some of the most irregular growth, likewise all strong shoots growing upright in the middle of the head, and all dead wood and suckers from the stem and root. *See PRUNING, also STATION.*

Manuring old Apple-trees.—We generally see fruitful old trees starving by inches; few think of manuring them. The consequence is, not only premature decay in the tree, but a continual sacrifice in produce; and if there be a full crop, the apples either crack, or become corroded with a rusty fungus, under which circumstances they will lose, in a great degree, their keeping properties. The best way to deal with such cases is to strip away, at the end of October, six inches of the surface-soil, and to apply a coating of the very slutch of the manure-yard, three or four inches in thickness; after which, the turf or some soil may be strewed over, to prevent the loss of its fertile properties. This, once in three years, accompanied by a rather severe thinning or pruning, will be found to renew the constitution of the tree in a very considerable degree; the fruit, also, will regain their size, their clear skin, and, of course, their keeping properties.

Diseases.—See CANKER, RUSSET, and MOSS.

Insects.—So impressed was Mr. Knight with the opinion, that of all our fruits none suffers more from insects than the Apple, that he declared his belief that these are a more frequent cause of the crops failing than frost. The figure-of-eight moth (*Episema cæruleocephala*), Linnæus denominates the pest of Pomona, and the destroyer of the blossoms of the apple, pear, and cherry. He also mentions another (*T'nea corticella*), as inhabiting apple-bearing trees under the bark. And Reaumur has given us the history of a species common in this country, and producing the same effect, often to the destruction of the crop, the caterpillar of which feeds in the centre of our apples, thus occasioning them to fall. Even the young grafts are frequently destroyed—sometimes many hundreds in one night—in the nurseries about London, by the *Curculio vastator* of Marsham (*Otiorynchus picipes*), one of the short-snouted weevils; and the foundation of canker, in full-grown trees, is often laid by the larvæ of *Temasa Weberana*. The sap, too, is often injuriously drawn off by a minute coccus, of which the female has the exact shape of a muscle-shell (*Coccus arborum linearis*), and which Reaumur has accurately described and figured. But the greatest enemy of this tree, and which has been known in this country since the year 1787, is the apple-aphis, called by some the coccus, and by others the American Blight. See AMERICAN BLIGHT, BLIGHT YPONOMENTA, ANTHONYMUS, COCCUS, PSYLLA, BOSTRICHUS, SCOLYTUS, and ACARUS.

APRICOT. *Armeni'aca vulga'ris*.

Varieties.—1. *Early Masculine*.—End of July. The best of the very early Apricots. Fruit rather small, round, and of a yellowish colour, tinted with red on one side.

Large Early, or *Précoce*.—Ripens next in order. An oblong fruit, of a palish-orange colour, with a very agreeable juice.

3. *Blenheim*, or *Shipley's*.—One of the most useful Apricots in the kingdom; for, although inferior in flavour to the Moorpark, it is a much greater bearer, and a sure ripener. An oval fruit, middle-sized, and of a palish-lemon colour. This kind is allied to the Moorpark; possibly a seedling from it.

4. *Hemskirke*.—Another of the Moorpark section; somewhat earlier. This, also, ripens safer than the Moorpark, and such is a weighty consideration with northern horticulturists. A roundish fruit, somewhat flattened at the crown; colour, orange and red.

5. *Breda*.—A well-known preserving fruit, and most eligible for growing, as an ordinary standard, in our southern counties, or on any trellis device. Called "*Brussels*" by some. A small fruit, generally of a cramped or angled appearance; of an orange colour, and rich flavoured.

6. *Royal*.—A good fruit, of very rich flavour, ripening just a little before the Moorpark. Of a large size, oval, and of an orange complexion.

7. *Moorpark*.—The first Apricot in the kingdom, taken altogether. A full-sized, roundish fruit, ripening about middle season; flavour first rate. No garden of any pretensions is complete without a Moorpark or two.

These are all that are truly essential either to the amateur or the cottager. For the amateur who, in a small garden, has room for three only, and those distinct kinds, we recommend Nos. 3, 5, and 7. If four, then take Nos. 1, 3, 5, 7. If five, then Nos. 1, 3, 5, 6, 7. For cottagers, we say, Nos. 3 and 7. Above all, we would recommend the "*Shipley's*" to the cottager, as being a hardier and a larger tree, and a much surer bearer. Besides the above, there are the *Black*, the *Large Early*, *Musch-Musch*, very sweet, of the *Breda* section; the *Orange*, fitter for preserving than dessert, a good bearer; the *Roman*, another good bearer; the *Turkey*, a useful late variety; the *Haisha*, a Syrian kind, delicious, and possessing a sweet kernel.

Choice of Trees.—Those who have to select, whether from stock of their own, or from the nursery, should first see that the junction between the stock and the scion is complete, and thoroughly healed. If any gum or other exudation appear on any stem, by all means reject the tree as to present use.

Two or three years' trained trees are the most eligible, and such should possess at least two branches on either side, and a central one if possible. Care should be taken to select those in which the side-branches are of about equal thickness.

Propagation is best done by budding. Some choose the Apricot stock, or those from the kernels; others prefer the Plum stock: the latter, however, has been much complained of in late years. Our nurserymen have what is called a "commoner" stock, which appears to be a sort of wild Plum, and which, in general, answers pretty well.

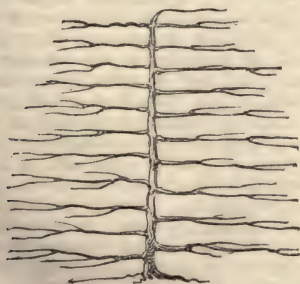
For dwarfs, bud at eight inches from the soil; for half-standards, at three feet; and for standards, at five feet.

Period of Planting.—Those who wish to gain time may plant successfully in the first or second week of October: any time, however, from that period until the early part of March will do.

Soil.—A good, sound, and rather unctuous loam is best, using a little ordinary vegetable matter, but no manure, unless on the surface. See MULCHING. Do not make the soil deeper than eighteen inches. See article STATIONS.

Aspect.—A south aspect is best in the northern parts of the kingdom; but the east and west frequently produce superior fruit in the southern counties, where very warm aspects are apt to produce mealy fruit in hot seasons. Standards can only be grown in our southern districts, where they are sometimes very prolific and high-flavoured. As standards, they are several years in coming into bearing.

Training.—The branches should be on an average from six to eight inches apart, and kept as horizontal as possible. The following is a very good form; but the ordinary fan-training is very well adapted, if care be taken to pinch over-luxuriant shoots in time.



Pruning must be regulated by the knowledge that, with the exception of such as the Moorpark, many varieties

bear chiefly on the shoots of the previous year; the Moorpark mostly on spurs two and three years' old.

Summer Pruning.—Take off all fore-right shoots, and others that are irregular and misplaced, reserving those that are not too vigorous, and that will train in well for next year's bearing. If done early in May, the finger and thumb will supersede the necessity for the knife. Continue to nail the shoots to the wall, as necessary, during the summer, tying down or nailing in all short-jointed, weak-looking spray. Over-vigorous shoots may be stopped early in June, and be thus induced to put forth more fertile laterals.

Winter Pruning had best be done as soon as the leaves have fallen, though it may be carried on until the buds begin to swell, in March. Cut out any naked-looking shoots not more than four or five years old, avoiding amputations in the larger limbs, and get their places re-occupied by younger and better branches. Keep a leading shoot at the end of each branch. Vigorous shoots of the last year shorten as far as the points seem ill-ripened—weaker shoots about one-third. This promotes the production of laterals for next year's fruiting, and gives a fuller supply of sap to the blossom-buds. Cut off gross, fore-right spurs; but lateral spurs may be retained, as they sometimes produce blossom-buds, as they nearly always do in the Moorpark. Let, also, all decaying or imperfect points be pruned off.

Espaliers are to be formed as those on walls; standards only requiring dead, crowded, or chafing branches to be removed.

When an Apricot gets diseased, it is much more profitable to replace it by a younger, than to attempt its renovation.

Gathering should take place before the fruit is dead ripe, or it will be mealy.

Thinning should commence as soon as the fruit is large enough for tarts, in May, or early in June; no fruit being left nearer, finally, than about five inches to another. The thinning may be done, however, at twice.

Insects.—Wasps and flies are best kept off by a net, at least a foot from the wall. See EARWIG, PEDISEA, and AFHIS.

Mildew is often the most formidable assailant of the Apricot, as it usually arises from excess of moisture to the root. Draining the border, and mixing lime

with the soil, has, in such case, been found efficacious as a preventive; and, at the same time, sulphur, as a well-known and powerful antagonist of the mildew, may be carefully dusted over the tree.

Protection of Blossom.—We know of no fruit that more requires or deserves the fostering care of the gardener than this. Blossoming, as it frequently does, in the end of February or beginning of March, it must expect to be rocked by not only the "rude, imperious gale," but, what is much worse, to be subjected occasionally to a temperature of some ten or fifteen degrees of frost. We have ever found it the best policy to protect carefully, using a rather thick covering, and taking care to remove it on every possible occasion. Nothing can be better than a stout canvass. Some, however, use bunting; some, ordinary garden-mats; and not a few, the fronds of fern, spruce-branches, and even wisps of straw.

General maxims of culture.—First of all, a sound, loamy soil, with very little manure, is most suitable. It is well, nevertheless, in order to gain time, to use a little generous soil, to start the plant into free growth; second, to persist in summer stopping, in order to equalise growths; and, thirdly, after careful summer training, to remove all superfluous spray which shades the embryo fruit buds in the end of August. In addition to this, top-dressings in May, and the application of liquid-manure, when the fruit commences the last swelling, will be found useful adjuncts of high culture. Apricot-branches, especially the Moorpark, are apt to decay of a sudden, without apparent reasons. By persisting in the tying-down system, however, a succession is ever ready for any gap.

AQUARIUM is the place devoted to the cultivation of aquatic or water-plants. The majority of those cultivated are exotic, and require the protection of glass. If there are only a few of these, they may be successfully grown in cisterns, placed in a stove; but if the collection be extensive, it requires a separate edifice. The tank-system of heating by hot-water offers a very superior mode of keeping the water at a fitting temperature. The leaden cistern in which the plants are submerged may rest readily upon the slates forming the cover of the tank. The handsomest form for this purpose would be a circular building, devoted

entirely to the aquatics, because they do not thrive satisfactorily in parts or corners of a house in which other plants are cultivated. The size will depend upon the will or the means of the owner. If the cultivation of the imperial *Victoria regia* is intended, it ought not to be less than 26 feet diameter. This will allow a tank of 20 feet diameter, and a walk 3 feet wide round it. To make it hold water, the sides should be made of thick slates, fitted so as to be water-tight; or it may be built with bricks set in cement, and lined with the same. It should be, at least, three feet deep, for the *Victoria* loves deep water. The water should be heated with $4\frac{1}{2}$ -inch hot-water pipes, coiled three times round the tank, and two pipes should be carried round the house, near to the outer wall, to give heat to the air of the house. The roof should be formed with wrought iron bars, and should be flat, as far as possible, to allow the rain-water to run off freely. The *Victoria* should be planted on a mound of strong earth, the base of which should be, at the least, 5 feet in diameter, and the top 2 feet, and it should be brought up within a foot of the surface of the water. This should have a motion given to it by means of a vertical wheel, with narrow boards affixed to it at right angles, at 6 or 8 inches apart. This vertical wheel should dip into the water a few inches, and should play upon an axis, being set in motion by a small stream of water falling constantly upon the boards. This wheel will give a gentle motion to the whole surface of the water, which motion will be a faint imitation of a stream, and will be very beneficial to the plants. The heat of the water should be never lower than 70°. Air will be necessary in the hot days of summer, and may be given by means of shutters in the walls, 8 or 9 feet apart, and a circular opening in the roof, at the centre, 2 feet or 3 feet in diameter. This part may be easily contrived, by any mechanic, to lift up and fall down by a simple machinery. This will cause a circulation of air, necessary in all habitations of plants. If the *Victoria* is not intended to be grown, the house need not be more than half the size.

The *Victoria* house, at Chatsworth, is a noble structure for the purpose. It is, however, the opposite to our *beau idéal* of an aquarium, being square, with a cir-

cular tank in the centre, and the corners filled up with eight small tanks, in which are grown one plant of a kind of other five-stove aquatics. A walk runs round the central tanks, and that walk is entered by a short one from each side of the square. A walk, too, is formed into each corner; and a walk runs close along the front, thus forming the small tanks alluded to above. The diameter of the central tank is 33 feet, which will give us some idea of this truly noble aquarium; but very few cultivators will choose to do to the expense of erecting such a house.

The following are aquatic stove-plants:

Aponogeton angustifolium.
 ———— *distachyon.*
 ———— *monostachyon.*
Arum venosum.
Cyperus alternifolius.
 ———— *papyrus.*
Damasonium Indicum.
Euryale ferox.
Limncharis Humboldtii.
Menyanthes Indica.
 ———— *ovata.*
Nelumbium speciosum.
Nymphaea cerulea.
 ———— *lotus.*
 ———— *pubescens.*
 ———— *pygmaea.*
 ———— *rubra.*
 ———— *stellata.*
 ———— *versicolor.*
Philydrum lanuginosum.
Pistia stratiotes.
Pontedera crassipes.
 ———— *cordata.*
 ———— *dilatata.*
Sagittaria lancifolia.
 ———— *obtusifolia.*
Thalia dealbata.
Victoria regia.

Propagation and culture.—Being all herbaceous plants, they are to be propagated as these generally are. Some are raised from seeds, which, in general, should be sown as soon as ripe, and the pots plunged in shallow water. When the plants come up, they may be transplanted into other pots, and shifted as they advance in growth, till in a pot of sufficient size to admit their flowering, which will generally take place the same season. Instead of being kept in pots, the plants may be inserted in a bed of earth, on the bottom of the aquarium. Keep the water warm, say from 70° to 75° in summer, and leave them nearly dry in winter. *Nelumbium speciosum* requires a water heat of 84°.

Cyperus, *Papyrus*, *Nelumbium*, *Nymphaea*, *Limncharis*, *Hydrocharis*, *Sagittaria*, and *Pontedera*, will furnish variety enough.

Aquarium for hardy Aquatics.—For this choose the lowest part of your garden; dig out the soil or clay to a moderate depth; it may either be of a regular form, as a circle or oval, or irregular, which latter we prefer, with a bay in one part, a jutting promontory in another, a shelving shore here, and a steep bank, covered with shrubs, at another point. However small the piece of water may be, a little good taste and judicious management will have the best effect. Having formed the shape by digging out the soil to the required depth, from two to three feet, the next point is to make it hold water. There is nothing better than clay for this purpose: it will require preparing to make it retentive of water. Take a small portion, say a barrow-load, and chop it into small pieces with a sharp spade. If it be dry, add a little water to it; then, with a wooden hammer having a long handle, beat it well till every part is of a uniform consistency, having the appearance of clay dough. Spread this on the bottom of the pond, about six inches thick. Proceed with mixing up and beating barrow-load after barrow-load till the bottom is entirely covered; then either put on a pair of wooden-soled shoes, or go on it with naked feet; the last is the best way. Tread the prepared clay firmly, closely, and evenly down. Do this well and properly, and the bottom will never leak. As soon as that part is finished, mix and beat more clay for the sides. With the spade, as soon as it or a portion of it is ready, dab it against the sloping bank, commencing at and joining it to the clay bottom. As soon as this is done, beat it with the wooden hammer firmly against the bank. If you have plenty of clay, eight inches will not be too thick for the sides. Remember, the more firmly the clay is beaten to the sides, the better it will hold water. The clay must be quite pure; that is, have no stones or other matter left amongst it. If there are any such left, they will serve as conduits for the water to escape by, and all your labour will be in vain. Proceed with adding layers of clay upward, until you reach the level you intend the water to be. Carry the clay-puddle two or three inches higher, level the natural soil down, to it, and let this soil be two inches or more higher than the clay. This will prevent it cracking away from

the bank. Your aquarium is now ready for the water. Previously to filling it, however, cover the bottom, upon the clay, with a coating of loam, four inches thick. This is intended to encourage the water-plants to root in, and to cause them to grow finely. If you can procure a sufficient quantity of rough stones or pebbles, place them against the banks. These will prevent the water from washing away the clay-puddle. All being now ready, let in the water.

Planting.—As soon as the aquarium is full of water you may plant the aquatics. The best mode is to have some wicker baskets of various sizes, to suit the size of each plant. Fill one with soil, inserting the plant intended for it at the same time; cover the top of the soil with some twisted haybands, coiling them round the plant; then lace them firmly down with some strong three-cord twine, passing it under the rim of the wicker basket, so as to keep in it the soil and the plant. Throw either a plank or a long ladder across the water. On this you can walk, carrying the plant with you. Drop it into the place you intend it for, and so treat all the other water plants. Some of them—the *water-lily*, for instance—have their leaves floating on the surface; but this is not needful at first. They (the leaves) will soon rise to the surface, and assume their natural position. The *water-violet* has both its roots and leaves floating; all that is required, then, is to cast it into the water, and let it flourish as it pleases.

Some of our readers may wish to have aquatics cultivated in tanks formed with masonry, the water to be used for watering plants in pots, &c. This can be easily accomplished by puddling the bottom with clay, as mentioned above, and building upon it sloping walls, using Roman cement for mortar. These, if well executed, are very ornamental, and of a neat appearance. If the tank walls are carried up three or four feet above the level, the plants are then brought nearer to the eye. An example of this may be seen in the royal gardens at Kew. Single plants of this kind may be cultivated in vases, or even in troughs, the only thing they will require being a portion of mud at the bottom for the plants to root in. The after-culture the aquatics will require is, if possible, to change the water frequently, and keep the sur-

face clear from water-mosses. A few ducks soon clear off the latter; otherwise the mosses must be skimmed, or flooded off with water, if there is supply enough.

The following are some of the best hardy aquatics:—

Alisma stratifolius (water-soldier), native of Britain.

Aponogeton distachyon (two-spiked Aponogeton), a very pretty, floating aquatic, from the Cape of Good Hope; yet, although from a warm country, it is sufficiently hardy to survive an ordinary winter. It has white flowers.

Buhtomus umbellatus (Umbell-flowering Rush), one of the best of our native aquatics, found in ditches. It has beautiful heads of pink flowers, and does not require deep water; consequently, may be planted near the edge of the water. Cattle are very fond of its leaves.

Calla palustris (Marsh Calla), a native of North America, and

Calla Ethiopica (African Calla), both plants of great beauty. The latter is, on that account, cultivated as a greenhouse and window plant, and is commonly called the "arum plant." This species is rather tender, but will survive our winter if planted in deep water.

Hottonia palustris (Marsh Hottonia), flesh-coloured flowers: a native of Britain.

Menyanthes trifoliata (Three-leaved Buckbean), with white flowers. This is another native species, growing in shallow waters. It is very pretty, and worth cultivation.

Nuphar lutea (Yellow-flowered Nuphar), a fine water-plant, native of Britain.

Nuphar advena (Stranger Nuphar), yellow and red; a fine species, from North America.

Nymphaea alba (White Water-Lily). This is, without doubt, the finest of our hardy water-plants. It loves deep water, with plenty of room, and a muddy bottom to root in. It then will produce numbers of its beautiful, large, milk-white flowers.

Typha latifolia (Broad-leaved Cat-tail). Though not so showy as some species, this plant is worth growing, producing its large flowers abundantly in shallow waters.

Besides these there are—*Alisma plantago*; *A. ranunculoides*; *Lobelia Dortmanna*; *Myriophyllum spicatum* and *verti-*

cillatum; *Polygonum amphibium*; *Sagittaria sagittifolia* and *latifolia*; *Teucrium scordium*; *Trapa natans* and *quadrispinosa*; and *Villarsia nymphoides* and *lacunosa*.

AQUILA'RIA. (From *aquila*, an eagle, locally called Eagle-wood in Malacca. Nat. ord., *Aquilariads* [Aquilareaceæ]. Linn., 10-*Decandria* 1-*Monogynia*.)

The Eagle-wood is the inside of the trunk of *Aquila'ria ova'ta* and *A. Aga'llochum*—esteemed a cordial in Asia. Cuttings in heat, in sand, and under a bell-glass. Sandy loam, with a little peat. Summer temp., 65° to 75°; winter, 55° to 60°.

A. Malaccensis (Malacca). 6. Whitish-green. Malacca. 1823. A stove evergreen shrub.

AQUILE'GIA. Columbine. (From *aquila*, an eagle; in reference to the form of the petals. Nat. ord., *Crowfoots* [Ranunculaceæ]. Linn., 13-*Polyandria* 5-*Pentagynia*.)

Seeds in March; common soil. Seedlings flower sometimes the first, but generally the second season. All hardy herbaceous perennials.

A. alpi'na (alpine). 1. Blue. June. Switzerland. 1731.

— *anemoni'des* (anemone-like). 1. Purple. July. Altaia. 1827.

— *arctica* (arctic). 1. Reddish-yellow. June. Siberia.

— *atropurpu'rea* (dark purple). 1. Purple. June. Siberia.

— *Fischeria'na* (Fischer's). 1. Purple. June. Siberia. 1827.

— *brachy'ceras* (short-spurred). 2. Brown. May. North of Europe. 1838.

— *Canadensis* (Canadian). 2. Reddish-orange. June. N. Amer. 1640.

— *lu'tea* (yellow-flowered). 1. Pale yellow. May. N. Amer. 1835.

— *Davurica* (Davurian). 2. Purple. June. Davuria. 1827.

— *formo'sa* (beautiful). 2. Red, orange. June. Kamschatka. 1822.

— *fra'grans* (fragrant). 2. Yellow-striped. May. Himalayas. 1839.

— *Garnieria'na* (Miss Garnier's). 2. Purple-striped. June. English hybrid. 1829.

— *glandulo'sa* (glandular). 2. Whitish-blue. June. Siberia. 1822.

— *co'ncolor* (one-coloured). 2. Violet. July. Altaia. 1822.

— *di'scolor* (two-coloured). Bluish-white. June. Siberia. 1799.

— *glau'ca* (milky-green). 2. Whitish-yellow. June. Himalayas. 1839.

— *grandiflo'ra* (large-flowered). 2. Blue. June. Siberia. 1818.

— *hy'brida* (hybrid). 2. Purple. Siberia.

— *jocun'da* (joyous-looking). 1½. Blue. June. Siberia. 1844.

— *lepto'ceras* (slender-horned). 1. Blue. June. Russia. 1833.

— *parviflo'ra* (small-flowered). 1. Purple. June. Siberia. 1819.

— *pubiflo'ra* (woolly-flowered). Pale purple. June. India. 1839.

— *Pyrena'ica* (Pyrenean). 1. Blue. July. Pyrenees. 1818.

A. Sibi'rica (Siberian). 2. Blue, white. June. Siberia. 1806.

— *Skinneri* (Mr. Skinner's). 2. Red, green. May. Guatemala. 1841.

— *viridiflo'ra* (green-flowered). 2. Green, yellow. June. Siberia. 1780.

— *visco'sa* (clammy). 2. Purple. June. Montpelier. 1752.

— *vulga'ris* (common). 2. Blue. June. Britain.

— *cornicu'la'ta* (small-horn-double). 2. Blue, white. June. Europe.

— *de'gener* (degenerate-double). 2. Blue, white. June. Europe.

— *e'legans* (elegant). 1. Purple. June. Europe.

— *inve'rsa* (inverted-double). 2. Blue, white. June. Europe.

— *stellat'a* (starred-double). 2. Blue, white. June. Europe.

A'RABIS. Wall-cress. (From *Arabia*, probably in reference to the dry situations where many of the species grow. Nat. ord., *Crossworts* or *Crucifers* [Brassicaceæ]. Linn., 15-*Tetradynamia*.)

Pretty rock-work ornaments; seeds in March or August; cuttings under hand-lights; common soil. Hardy perennial trailers, except where otherwise specified.

A. al'bid'a (whitish). 1. White. July. Caucasus. 1798.

— *variega'ta* (variegated-leaved). 2. White. February. Gardens.

— *alpe'stris* (rocky). 1. White. July. Switzerland. 1819. Hardy biennial.

— *alpi'na* (alpine). 1. White, yellow. May. Switzerland. 1596.

— *Clusid'na* (Clusius's). 1. White. May. Pyrenees. 1596.

— *na'na* (dwarf). 1. White. May. Switzerland. 1819.

— *ambig'ua* (doubtful). 1. White. July. Siberia. 1824. Hardy biennial.

— *areno'sa* (sand). 1. Pink. July. Germany. 1798. Hardy annual.

— *bellidiflo'ha* (daisy-leaved). 1. White, yellow. June. Switzerland. 1773.

— *cæru'lea* (blue). 1. Pale blue. June. Switzerland. 1793.

— *cilia'ta* (eye-lashed). 1. White. June. Ireland. Hardy biennial.

— *crispa'ta* (curled). 1. White. May. Carniola. 1818.

— *curtis'liqua* (short-podded). 1. White. June. North of Europe. 1825. Hardy biennial.

— *dasyca'rpa* (thick-podded). 1. White. June. Podolia. 1827.

— *flexuo'sa* (zigzag). Naples. 1832.

— *lasiolo'ba* (jagged-lobed). 2. White. June. Mexico. 1820. Hardy biennial.

— *lilac'na* (lilac-flowered). 1. Lilac. August. Europe. 1836.

— *longifolia* (long-leaved). 1. White. June. Persia. 1820.

— *lu'cida* (shining-leaved). 1. White. June. Hungary. 1790.

— *variega'ta* (variegated-leaved). 1. White. June. Gardens.

— *mo'llis* (soft). 1. White. June. Caucasus. 1817.

— *nutans* (nodding). 1. White. May. Switzerland. 1658.

— *oviri'ensis* (ovarian). 1. Pale red. June. Carinthia. 1824.

— *petra'ea* (rock). 1. White. June. Austria. 1800.

- A. petraea hastulata* (halbert-leaved). 1. Purple. June. Britain.
 — *hi'spida* (bristly). 1. White. June. Scotland.
 — *praecox* (early). 1.
 — *variegata* (variegated). 1. White. June. Gardens.
 — *procurrens* (procurent). 1. White. June. Hungary. 1818.
 — *pumila* (dwarf). 1. White. June. Austria. 1816.
 — *retrofracta* (bent-back). Blush. June. N. Amer. 1827.
 — *rosea* (rosy-flowered). 1. Rose. February. Calabria. 1832.
 — *Schivereckiana* (Shivereck's). 1. White. June. Austria. 1825.
 — *stellulata* (little-starred). 1. White. June. Italy. 1817.
 — *stenopetala* (narrow-petaled). 1. White. June. 1818. Hardy biennial.
 — *stolonifera* (shoot-bearing). 1. White. June. Carniola. 1818.
 — *stricta* (upright). Cream. May. England.
 — *torophylla* (bow-leaved). 1. White. July. Volga. 1823. Hardy biennial.
 — *undulata* (waved-leaved). 1. White. June. South of Europe. 1810.
 — *verna* (spring). 1. Purple. May. France. 1710. Hardy annual.

A'RACHIS. Earth-nut. (From *a*, not, and *rachis*, a branch; a branchless plant. Nat. ord., *Leguminosae* [Fabaceæ]. Linn., 17-*Diadelphia* 4-*Decandria*.)

Seed and offsets; sandy loam; summer temp., 60° to 75°; winter, 55° to 65°; but may be treated as an annual.

- A. hypogaea* (underground). 2. Yellow. June. Africa. 1812.

ARA'LLA. (Meaning unknown. Nat. ord., *Ivyworts* [Araliaceæ]. Linn., 5-*Pentandria* 5-*Pentagynia*.)

Aromatic gum-resin is produced from the root of *A. racemosa*, *spinosa*, and *hi'spida*. The young shoots of *A. edulis* are used in China as a delicate vegetable; and, in North America, the shoots of *A. nudicaulis* are used like sarsaparilla. Hardy species, division of the plants, and also division of the roots. Greenhouse and stove species; cuttings of the ripe wood, in a gentle heat, strike quickly. Sandy loam and peat; common treatment. All stove evergreens, except where otherwise specified.

- A. aculeata* (prickly). White. Nepaul. 1820.
 — *arborescens* (tree). 15. Green. Jama'ca. 1820.
 — *capitata* (capitate). 12. Green. W. Ind. 1820.
 — *cochleata* (shell-leaved). 10. White. E. Ind. 1820.
 — *crassifolia* (thick-leaved). 10. Green. New Zealand. 1846.
 — *digitata* (finger-leaved). 30. White. E. Ind. 1817.
 — *edulis* (eatable). Green. Japan. 1843.
 — *ferruginea* (rusty). 40. White. Trinidad. 1826.
 — *fragrans* (sweet-scented). White. Nepaul. 1818.
 — *hi'spida* (bristly). 8. White. July. N. Amer. 1799. Hardy deciduous.
 — *Japonica* (Japan). 10. Green. June. Japan. 1838. Half-hardy.
 — *micans* (glittering). 40. White. Trinidad. 1846.

- A. macrophylla* (large-leaved). 6. White. Norfolk Island. 1831. Greenhouse evergreen.
 — *Muhlenbergiana* (Muhlenberg's). 2. White. July. N. Amer. Hardy herbaceous.
 — *nudicaulis* (naked-stalked). 4. White. July. N. Amer. 1731. Hardy herbaceous.
 — *pentaphylla* (five-leaved). 20. White. Japan. 1810. Greenhouse evergreen.
 — *pubescentis* (downy). 6. White. W. Ind. 1818.
 — *racemosa* (raceme-flowering). 4. White. July. N. Amer. 1658. Hardy herbaceous.
 — *sambucifolia* (elder-leaved). 5. White. August. N. Holland. 1823. Greenhouse evergreen.
 — *Shepherdii* (Shepherd's). Green. New Zealand. 1842.
 — *spinosa* (thorny). 8. White. Virginia. 1698. Hardy deciduous.
 — *trifoliata* (three-leaved). Green. New Zealand. 1842.
 — *umbraculifera* (shade-giving). 40. White. E. Ind. 1818.

ARAUCA'RIA. (From *Araucanos*, the name of the people in whose country *Araucaria imbricata* grows in Chili. Nat. ord., *Conifers* [Pinaceæ]. Linn., 22-*Diccia* 13-*Polyandria*.)

Seeds of *A. imbricata* are wholesome when roasted. Seeds when procurable; cuttings of young, ripened wood, under a bell-glass, in a cool place, but shaded. Good, friable loam. *A. imbricata* wants no protection. *A. Brasiliensis* is tender. *A. Cunninghamii* will live in sheltered places near the sea. *A. excelsa* ornamental in a conservatory.

- A. Bidwellii* (Mr. Bidwell's). 150. Apetal. Moreton Bay.
 — *Brasiliensis* (Brazilian araucaria, or pine). 100. Apetal. Brazil. 1819.
 — *columnaris* (pillared). Van Diemen's Land. 1851.
 — *Cunninghamii* (Cunningham's, or Moreton Bay pine). 100. Apetal. Moreton Bay.
 — *excelsa* (lofty, or Norfolk Island pine). 120. Apetal. Norfolk Island.
 — *imbricata* (imbricated, or Chili pine). 150. Apetal. Chili. 1796.

ARBORE'UM is a collection of trees and shrubs capable of enduring exposure to our climate. These are sometimes arranged in genera, according to their precedence in the alphabet; but best in groups, conformably to the natural system; and, whichever is adopted, it is quite compatible with an attention to facility of access by means of walks, as well as to picturesque effect.

ARBUR is a seat shaded by trees. Sometimes these are trained over a wooden or iron trellis-work, mingled with the everlasting sweet-pea, clematis, and other climbing, sweet-scented plants. When the trellis-work is complicated, and the structure more elaborate, with a preponderance of the climbers already named, together with the honeysuckle,

&c., they are described as *French* or *Italian* arbutus.

A'RBOR VI'TÆ. *Thu'ja*.

A'RBUTUS. Strawberry-tree. (From *arboise*, a Celtic word for rough fruit. Nat. ord., *Heathworts* [Ericaceæ]. Linn., 10-Decandria 1-Monogynia.)

Seeds, budding, and inarching. Common soil for the hardy species; sandy loam and peat for those which require the protection of a greenhouse in winter. All those are hardy evergreens which are not otherwise described.

A. andrachne (andrachne). 10. White. April. Levant. 1724.

— *andrachnioides* (andrachne-like). 8. Whitish-green. April.

— *Canariensis* (Canary). 8. Whitish-green. June. Canaries. 1796. Greenhouse evergreen.

— *densiflora* (thickly-flowered). 20. White. Mexico. 1826. Greenhouse evergreen.

— *hybrida* (hybrid).

— *laurifolia* (laurel-leaved). 20. White. Mexico. 1825. Greenhouse evergreen.

— *Menziesii* (Menzies's). White. N. Amer. 1827.

— *Milleri* (Miller's). 10. White. September. Hybrid. 1825.

— *mucronata* (sharp-pointed leaved). 1. White. Magellan. 1828. Greenhouse evergreen trailer.

— *pilosa* (hairy-branched). 1. White. May. Mexico. 1829.

— *phyllyreaefolia* (phillyrea-leaved). 1. White. Peru. 1812. Greenhouse evergreen.

— *procera* (tall). 15. White. N. Amer. 1825.

— *pu'nila* (dwarf). 4. White. Magellan. 1825. Greenhouse evergreen.

— *serratifolia* (saw-edged-leaved). 6. Whitish-green. Greenhouse evergreen.

— *speciosa* (showy). Mexico. 1837.

— *tomentosa* (woolly-branched). 4. White. March. California. 1826.

— — *nu'da* (smooth-branched).

— *unedo* (unedo). 10. White. October. Ireland.

— *crispa* (curled). 8. White. October.

— *integrifolia* (entire-leaved). 6. Pink. October.

— — *ple'na* (double-flowered). 5. White. October.

— — *salicifolia* (willow-leaved). 6. White. October.

— *schizope'tala* (cut-petaled). 7. White. October.

— — *ru'bra* (red-flowered). 10. Pink. October.

ARCADE is a walk arched over with trellis-work, and this covered with climbers.

ARCHANGEL, or White Dead Nettle. *La'mium d'bum*.

ARCHANGELICA. (From *arche*, chief, and *angelica*, from its supposed virtues. Nat. ord., *Umbellifers* [Apiaceæ]. Linn., 5-Pentandria 1-Monogynia.)

A. officinalis (official). 4. Green. July. England.

This is the same as *Angelica archangelica*. There are two other species, but worthless. Seeds in April; common soil.

ARCTOSTAPHYLOS. From *arktos*, a bear, and *staphyle*, a berry. Bears eat the fruit

of some species. Nat. ord., *Heathworts* [Ericaceæ]. Linn., 10-Decandria 1-Monogynia.)

Hardy plants, requiring treatment similar to *Arbutus*.

A. alpina (alpine blackberryed). 1. Flesh. April. Scotland. Deciduous trailer.

— *longifolia* (long-leaved). Mexico. 1847. Half-hardy evergreen under-shrub.

— *nitida* (shining). 4. White. May. Mexico. 1836. Half-hardy evergreen shrub.

— *pungens* (stinging). 1. White. February. Mexico. 1839. Half-hardy evergreen shrub.

— *tomentosa* (downy). White. N. Amer. 1826. Evergreen shrub.

— *uva-u'rsi* (bear's-grape). 1. White. April. Britain. Evergreen trailer.

ARCTOTHE'CA. (From *arktos*, a bear, and *theke*, a capsule; seed-pod, or capsule, as rough as a bear. Nat. ord., *Composites* [Asteraceæ]. Linn., 19-Syngenesia 3-Frustranea. Allied to *Arctotis*.)

Greenhouse herbaceous perennials. Division of the plant; peat and loam. Summer temp., 55° to 65°; winter, 40° to 45°.

A. grandiflora (great-flowered). 1½. Yellow. July. Cape of Good Hope. 1833.

— *hirta* (hairy). 1. Yellow. July. Cape of Good Hope. 1820.

— *repens* (creeping). 1. Yellow. July. Cape of Good Hope. 1793.

ARCTOTIS. (From *arktos*, a bear, and *ous*, an ear. Shaggy fruit. Nat. ord., *Composites* [Asteraceæ]. Linn., 19-Syngenesia 4-Necessaria.)

General treatment same as for *Arctotheca*. Many are easily propagated by cuttings in sand, under a bell-glass, in a shady, cool place, and a few by seeds. All greenhouse evergreens, except where otherwise specified.

A. acanthis (stemless). 1. Yellow, red. May. Cape of Good Hope. 1759. Greenhouse herbaceous perennial.

— *angustifolia* (narrow-leaved). 2. Purple. August. Cape of Good Hope. 1739.

— *arborescens* (tree-like). 2. White, pink. July. Cape of Good Hope. 1818.

— *argentea* (silver-leaved). 1. Orange. August. Cape of Good Hope. 1774. Greenhouse biennial.

— *aspera* (broad-rough-leaved). 3. Yellow. August. Cape of Good Hope. 1710.

— *aureola* (golden). 1. Orange. August. Cape of Good Hope. 1710.

— *auriculata* (ear-leaved). 1. Yellow. July. Cape of Good Hope. 1795.

— *bicolor* (two-coloured). 1. White, red. July. Cape of Good Hope. 1812.

— *cineraria* (cineraria). 2. Yellow, orange. July. Cape of Good Hope. 1824. Greenhouse herbaceous perennial.

— *cuprea* (copper-coloured). 2. Yellow, purple. July. Cape of Good Hope. 1823.

— *decumbens* (decumbent). 1. Yellow. August. Cape of Good Hope. 1790. Greenhouse herbaceous perennial.

— *decurrens* (decurrent). 2. White, red. July. Cape of Good Hope. 1794.

- A. elatior* (taller). 2. Yellow, purple. July. Cape of Good Hope. 1820.
 — *fastuosa* (disdainful). 2. Orange, red. June. Cape of Good Hope. 1795. Greenhouse biennial.
 — *flaccida* (flapping-stalked). 1. White, red. June. Cape of Good Hope. 1794. Greenhouse annual.
 — *glabra* (smoothish). 2. Yellow, purple. June. Cape of Good Hope. 1820.
 — *glaucophylla* (milky-green-leaved). 1. Yellow, purple. July. Cape of Good Hope. 1794. Greenhouse herbaceous perennial.
 — *grandiflora* (great-flowered). 2. Pale yellow. May. Cape of Good Hope. 1774. Greenhouse biennial.
 — *maculata* (spotted). 2. White, orange. June. Cape of Good Hope. 1812.
 — *melanocycla* (dark-circled). 1. White, purple. June. Cape of Good Hope. 1812.
 — *paniculata* (panicked). 2. White, red. May. Cape of Good Hope. 1816.
 — *plantaginea* (plantain-leaved). 1. Orange. June. Cape of Good Hope. 1768. Greenhouse herbaceous perennial.
 — *reptans* (creeping). 1. White, red. August. Cape of Good Hope. 1795. Greenhouse herbaceous perennial.
 — *revoluta* (revolute). 1. Yellow. June. Cape of Good Hope. 1820. Greenhouse herbaceous perennial.
 — *rosea* (rosy). 1. Pink. September. Cape of Good Hope. 1793.
 — *Schraderi* (Schrader's). Pink. May. Cape of Good Hope. 1832. Greenhouse annual.
 — *speciosa* (showy). 2. Yellow. July. Cape of Good Hope. 1812.
 — *spinulosa* (small-thorny-leaved). 2. Orange. June. Cape of Good Hope. 1795. Greenhouse annual.
 — *squarrosa* (squamose). 2. Orange, purple. June. Cape of Good Hope. 1825.
 — *tricolor* (three-coloured). 2. White, red. June. Cape of Good Hope. 1794. Greenhouse herbaceous perennial.
 — *undulata* (wave-leaved). 1. Orange. May. Cape of Good Hope. 1795. Greenhouse herbaceous perennial.
 — *virgata* (twiggy). 1. Yellow. July. Cape of Good Hope. 1816. Hardy annual.

ARCUTA'TION. The same as LAYERING.

ARDISIA. (From *ardis*, a spear-head; in reference to the sharp-pointed divisions of the flower. Nat. ord., *Ardisiads* [Myrsinacæ]. Linn., 5-Pentandria 1-Monogynia.)

Half-ripened cuttings from the stem, or pieces of the roots inserted in light soil, and placed in strong heat, soon root; also by seeds, which require a rather long period to vegetate; peat and loam. Summer temp., 60° to 70°; winter, 48° to 55°. Stove evergreens, except where otherwise specified.

- A. acuminata* (long-pointed). 7. July. Guiana. 1803.
 — *canaliculata* (channelled). 6. July. 1821.
 — *Canariensis* (Canary). 10. Red. July. Canaries. 1820. Greenhouse.
 — *colorata* (coloured). 10. Red. July. E. Ind. 1816.
 — *complanata* (levelled). 6. Pink. Penang. 1824.
 — *coriacea* (leathery). 7. Scarlet. Antilles. 1824.

- A. crenulata* (round-notched-leaved). 10. Red. July. W. Ind. 1809.
 — *elegans* (elegant). 10. Red. August. E. Ind. 1809.
 — *exelsa* (tall). 30. Red. July. Madeira. 1784. Greenhouse.
 — *hymenandra* (membrane-anthered). 8. Pink. May. Sylhet. 1828. Greenhouse.
 — *humilis* (humble). 3. Red. July. Ceylon. 1820.
 — *lanceolata* (lanceolate). 6. Red. July. E. Ind. 1809.
 — *lateriflora* (side-flowering). 6. White. W. Ind. 1793.
 — *lentiginosa* (speckled). 6. White. China. 1814.
 — *litoralis* (sea-side). 4. Red. July. E. Ind. 1809.
 — *macrocarpa* (long-fruited). 5. Flesh. Nepal. 1824. Greenhouse.
 — *odontophylla* (tooth-leaved). 6. Pale salmon-red. July. Bengal. 1834.
 — *paniculata* (panicked). 12. Red. July. E. Ind. 1818.
 — *pubescens* (hoary-haired). 6. July. 1820. Greenhouse.
 — *punctata* (dotted). 10. White. July. China. 1823.
 — *pyramidalis* (pyramidal). 25. Red. July. Santa Cruz. 1818.
 — *serrulata* (saw-leaved). 3. Red. July. W. Ind. 1821.
 — *solanacea* (nightshade-like). 10. Red. August. E. Ind. 1798.
 — *thyrsiflora* (thyrsce-flowered). 5. Pink. Nepal. 1824. Greenhouse.
 — *tinifolia* (tinus-leaved). 10. Red. July. W. Ind. 1820.

ARDU'NA. (In honour of *P. Arduini*, curator of the economical garden of Padua, in the time of Linnæus. Nat. ord., *Doghanes* [Apocynacæ]. Linn., 5-Pentandria 1-Monogynia.)

Cuttings in sand, under a glass; peat and loam. Summer temp., 60° to 65°; winter, 40° to 45°. A greenhouse evergreen.

- A. bispinosa* (two-spined). 2. White. June. Cape of Good Hope. 1760.

ARE'CA. The Cabbage Palm. (Called *areec*, in Malabar, when an old tree. Nat. ord., *Palms* [Palmacæ]. Linn., 21-Monocia 10-Monadelphica.)

The Catechu yields a most powerful and astringent medicine, and its berry is the Betel-nut, chewed by the natives of Hindostan, and its charcoal as a dentifrice. Seeds; light, sandy soil. Summer temp., 65° to 80°; winter, 55° to 65°. All stove Palms.

- A. catechu* (medicinal catechu). 30. White. E. Ind. 1690.
 — *crinita* (hair-coated). 20. White. South of France. 1824.
 — *exilis* (slender). 30. W. Ind. 1823.
 — *humilis* (humble). 6. White. E. Ind. 1814.
 — *lutescens* (yellowish). 20. White. South of France. 1824.
 — *mamieot* (mamicot). 30. S. Amer. 1822.
 — *montana* (mountain). 30. S. Amer. 1820.
 — *oleracea* (potherb). 40. White. W. Ind. 1856.
 — *rubra* (red). 30. Mauritius. 1823.
 — *triandra* (three-stamened). 20. E. Ind. 1825.

ARENA'RIA. (From *arena*, sand; in

reference to the sandy soil in which the plant grows. Nat. ord., *Clovesworts* [*Caryophyllaceæ*]. Linn., 10-*Decandria* 3-*Trigynia*. Allied to *Alsine*.)

All hardy herbaceous perennials, except when otherwise described. Seeds; division of the plant; sandy soil.

- A. Austriaca* (Austrian). $\frac{1}{2}$. White. July. Austria. 1793.
— Bulearica (Balearic). $\frac{1}{2}$. White. July. Majorca. 1787. Hardy evergreen trailers.
— biflora (two-flowered). $\frac{1}{2}$. White. March. Switzerland. 1818.
— brevicaulis (short-stemmed). $\frac{1}{2}$. White. July. Alps, Europe. 1823.
— cæspitosa (turfy). $\frac{1}{2}$. White. July. Switzerland. 1826.
— calycina (large-calyxed). $\frac{1}{2}$. White. July. Barbary. 1816. Hardy annual.
— calyculata (calyculate). $\frac{1}{2}$. White. July. Hungary. 1817.
— Canadensis (Canada). $\frac{1}{2}$. Red. July. N. Amer. 1812. Hardy annual.
— cuneiceps (hoary). $\frac{1}{2}$. White. July. 1817.
— capillacea (hair-like). $\frac{1}{2}$. White. July. Piedmont. 1819. Hardy annual.
— capillaris (capillary). $\frac{1}{2}$. White. July. Siberia. 1820.
— cherlerioides (cherleria-like). $\frac{1}{2}$. White. July. France.
— cilialta (eye-lashed). $\frac{1}{2}$. White. June. Ireland.
— Coimbricensis (Coimbra). $\frac{1}{2}$. White. July. Portugal. 1817. Hardy annual.
— Dahurica (Dahurian). $\frac{1}{2}$. White. July. Dahuria. 1824.
— densa (dense). $\frac{1}{2}$. White. July. Hungary. 1824.
— fasciculata (fascicled). $\frac{1}{2}$. White. July. Scotland. Hardy annual.
— filifolia (thread-leaved). $\frac{1}{2}$. White. July. Arabia.
— formosa (handsome). $\frac{1}{2}$. White. June. Dahuria. 1824.
— Gerardii (Gerard's). $\frac{1}{2}$. White. June. France. 1822.
— glandulosa (glandular). $\frac{1}{2}$. Purple. June. Europe. 1820. Hardy annual.
— glomerata (round-headed). $\frac{1}{2}$. White. July. Tauria. 1818. Hardy annual.
— graminifolia (grass-leaved). $\frac{1}{2}$. White. July. Siberia. 1817.
— glaberrima (smoothest). $\frac{1}{2}$. White. July. Caucasus. 1816.
— grandiflora (great-flowered). $\frac{1}{2}$. White. July. Switzerland. 1783.
— Helmi (Helm's). $\frac{1}{2}$. White. July. Siberia. 1826.
— hirsuta (hairy). $\frac{1}{2}$. White. July. Caucasus. 1820.
— imbricata (imbricated). $\frac{1}{2}$. White. July. Caucasus. 1820.
— juniperina (juniper-leaved). $\frac{1}{2}$. White. July. Siberia. 1800.
— lanceolata (lanceolate). $\frac{1}{2}$. White. June. Switzerland. 1823.
— laricifolia (larch-leaved). $\frac{1}{2}$. White. August. Britain.
— longifolia (long-leaved). $\frac{1}{2}$. White. July. Siberia. 1823.
— macrocarpa (long-fruited). $\frac{1}{2}$. White. July. N. Amer. 1810.
— marina (marine). $\frac{1}{2}$. Purple. July. Germany. 1793.
— marginata (marginated). $\frac{1}{2}$. White. July. Caucasus. 1818. Hardy deciduous trailer.

- A. Mediterranea* (Mediterranean). $\frac{1}{2}$. White. June. Mediterranean. 1823. Hardy annual.
— montana (mountain). $\frac{1}{2}$. White. June. France. 1800.
— multicaulis (many-stemmed). $\frac{1}{2}$. White. July. Europe. 1814.
— nardifolia (nardus-leaved). $\frac{1}{2}$. White. July. Siberia. 1827.
— nemorosa (grove). $\frac{1}{2}$. White. S. Amer. 1832.
— Norvegica (Norwegian). $\frac{1}{2}$. White. July. Scotland. Hardy evergreen plant.
— otitoides (otites-like). White. July. Siberia. 1820.
— pendula (pendulous). White. July. Hungary. 1816.
— peptoides (peplis-like). White. June. Britain. Evergreen creeper.
— pinifolia (pine-leaved). White. July. Caucasus. 1823.
— polygonoides (knotgrass-like). Red. July. Switzerland. 1822.
— procera (tall). White. July. Siberia. 1820.
— procumbens (procumbent). Purple. July. Egypt. 1801. Half-hardy deciduous trailer.
— pubescens (downy). White. July. Archipelago. 1820.
— purpurea (purple). White. July. Spain. 1823. Hardy annual.
— ramosissima (branchiest). White. July. Hungary. 1816. Hardy biennial.
— recurva (recurved). White. July. Alps. 1822.
— rigida (stiff). $\frac{1}{2}$. White. July. Siberia. 1823.
— rostrata (beaked). $\frac{1}{2}$. White. August. Hungary. 1816.
— rubra (red). $\frac{1}{2}$. Purple. July. Britain. Hardy annual.
— rubella (reddish-flowered). $\frac{1}{2}$. Red. July. Scotland.
— salina (saline). $\frac{1}{2}$. Purple. July. Bohemia. 1820. Hardy annual.
— saxatilis (rock). $\frac{1}{2}$. White. July. Germany. 1732.
— scabra (rough). $\frac{1}{2}$. White. July. Alps, Europe. 1822.
— setacea (bristle-leaved). $\frac{1}{2}$. White. July. France.
— striata (striated). $\frac{1}{2}$. White. July. Switzerland. 1683.
— stricta (upright). $\frac{1}{2}$. White. July. N. Amer. 1812.
— subulata (owl-shaped). $\frac{1}{2}$. White. June. Caucasus. 1822.
— tenuifolia (fine-leaved). $\frac{1}{2}$. White. July. England. Hardy annual.
— — Barrelieri (Barrelier's). $\frac{1}{2}$. White. July. South of France. 1820.
— hybrid (hybrid). $\frac{1}{2}$. White. July. South of France. 1827.
— viscidula (viscidish). $\frac{1}{2}$. White. July. France. 1818.
— tetraquetra (square-stalked). $\frac{1}{2}$. White. August. Pyrenees. 1731.
— triflora (three-flowered). $\frac{1}{2}$. White. July. South of Europe. 1816.
— triandra (three-stamened). $\frac{1}{2}$. White. July. 1817. Hardy annual.
— uliginosa (marsh). $\frac{1}{2}$. White. July. Switzerland. 1817.
— verna (spring). $\frac{1}{2}$. White. May. Britain.
— verticillata (whorled). $\frac{1}{2}$. White. July. Armenia. 1823.

ARETHUSA. (A classical name, after

one of Diana's nymphs. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-Gynandria 1-Monogynia.)

Division, peat and loam, with charcoal. Summer temp., 65° to 80°; winter, 55° to 65°.

A. bulbosa (bulbous). 3. Whitish-red. June-Carolina. Greenhouse.
— *plicata* (plaited). 1. July. E. Ind. 1806. Stove.

ARE'TIA. (Named in honour of a Swiss professor, *Aretius*. Nat. ord., *Primeworts* [Primulaceæ]. Linn., 5-Pentandria 1-Monogynia.)

Division of the roots in spring or autumn; sand, loam, and peat. They cannot bear stagnant water; are good for rock-work; all, but one, hardy herbaceous perennials.

A. alpina (alpine). 4. Pink. June. Switzerland. 1775.
— *argentea* (silvery). 4. White. June. Switzerland. 1826. Half-hardy herbaceous perennial.
— *Helvetica* (Swiss). 4. White. June. Switzerland. 1775.
— *pube'scens* (downy). 4. White. June. Switzerland. 1824.
— *Vitalia'na* (Vital's). 4. Yellow. June. Pyrenees. 1767.

ARGA'NIA. (From *argam*, its aboriginal name. Nat. ord., *Sapotads* [Sapotaceæ]. Linn., 5-Pentandria 1-Monogynia.)

Fine stove, hard-wooded, evergreen timber-tree; layers and cuttings in autumn or spring; the latter under a bell-glass. Summer temp., 60° to 70°; winter, 45° to 55°. The specific gravity of the wood is so great that it sinks in water.
A. sideroxylon (iron-wood). 14. Green, yellow. July. Morocco. 1711.

ARGEMO'NE. (From *argema*, a cataract of the eye; in reference to its medicinal qualities. Nat. ord., *Poppyworts* [Papaveraceæ]. Linn., 13-Polyandria 1-Monogynia.)

The seed of *A. Mexicana* is the *Fico del inferno* (infernal fig) of the Spaniards; a purgative and powerful narcotic, especially if smoked with tobacco. In the West Indies they are used as a substitute for ipecacuanha. Hardy annuals, except where otherwise specified; seeds, suckers, and divisions in March; common soil.

A. albiflora (white-flowered). 2. White. July. Mexico. 1821.
— *Barclaya'na* (Mr. Barclay's). 5. Cream. June. Mexico. 1827. Half-hardy herbaceous perennial.
— *grandiflora* (great-flowered). 3. White. July. Mexico. 1827. Hardy herbaceous perennial.
— *Mexicana* (Mexican). 2. Yellow. July. Mexico. 1592.
— *ochroleuca* (yellowish-white). 2. Sulphur. July. Mexico. 1827.

ARGOLA'SIA. (From *argos*, white, and *asios*, woolly; the perianth being velvety-white. Nat. ord., *Bloodroots* [Hæmodoraceæ]. Linn., 6-Hexandria 1-Monogynia.)

A small greenhouse plant, of easy culture, but must not get dry; division of the roots; sandy loam and peat. Summer temp., 50° to 65°; winter, 40° to 45°.

A. plumosa (feathery). 2. White. Cape of Good Hope. 1787.

ARGYRE'IA. Silver-weed. (From *argyreos*, silvery; in reference to the silvery hue of the leaves. Nat. ord., *Bindweeds* [Convolvulaceæ]. Linn., 5-Pentandria 1-Monogynia.)

All stove evergreen twiners. Cuttings, half-ripened wood, in sand, under a bell-glass, in April, and in nice bottom-heat; rich loam and peat. Summer temp., 60° to 75°; winter, 50° to 60°.

A. bo'na-nox (night-flowering). 20. White. E. Ind. 1799.
— *capitata* (headed). Purple. July. E. Ind. 1823.
— *cuneata* (wedge-leaved). 10. Purple. August. E. Ind. 1822.
— *cymosa* (cyme-flowered). 10. Pink. E. Ind. 1823.
— *festiva* (festive). White. July. India. 1838.
— *Malabarica* (Malabar). Cream. July. E. Ind. 1823.
— *ornata* (adorned). 10. White. E. Ind. 1824.
— *poma'cea* (apple-fruited). Pink. E. Ind. 1818.
— *speciosa* (showy). 10. Red. July. E. Ind. 1818.
— *splendens* (shining). 1. Pink. E. Ind. 1820.
— *uniflora* (one-flowered). 30. White. E. Ind. 1817.

ARISE'MA. (From *aron*, an arum, and *sana*, a standard; in reference to the close affinity to Arum. Nat. ord., *Arads* [Ara-cææ]. Linn., 21-Monæcia 9-Polyandria.)

Tuberous-rooted perennials. Division of its tubers; loam and peat.

A. draco'ntium (dragon). 2. June. Green. N. Amer. 1759. Hardy.
— *macrospatha* (large-spathed). Pink. July. Morelia. 1839. Greenhouse.
— *Murrayi* (Murray's). 14. Apetal. March. Bombay. 1847. Stove.
— *ringens* (gaping). 4. May. Japan. 1800. Half-hardy.
— *ternatum* (three-leafleted). 4. Purple. May. Japan. 1774. Half-hardy.
— *triphyllum* (three-leaved). 4. Brown. May. N. Amer. 1664. Hardy.

ARI'STEA. (From *arista*, a point or beard; in reference to the rigid points of the leaves. Nat. ord., *Irids* [Iridaceæ]. Linn., 3-Triandria 1-Monogynia.)

The least conspicuous plants of this order. Their leaves form the chief herbage for cattle at the Cape of Good Hope. Greenhouse plants. Seed and divisions in March or April; sandy loam and peat. Winter temp., 40° to 45°.

A. capitata (headed). 3. Blue. July. Cape of Good Hope. 1790.
— *cyanea* (bright blue). 4. Blue. June. Cape of Good Hope. 1759.
— *melaleuca* (black and white). 1. Pale blue. June. Cape of Good Hope. 1796.
— *pustilla* (little). 4. Blue. July. Cape of Good Hope. 1806.
— *spiralis* (spiral-flowered). 1. Pale blue. May. Cape of Good Hope. 1796.

ARISTOLO'CHIA. Birthwort. (From *aristos*, best, and *lochvia*, parturition; its supposed medicinal character. Nat. ord., *Birthworts* [*Aristolochiaceæ*]. Linn., 20-*Gynandria* 6-*Hexandria*.)

Herbaceous and climbing plants, the first by division of the roots; hardy climbing ones by division of the roots, and layers in spring or autumn. Stove plants; cuttings of fine wood, in sand, in heat, under a bell-glass. Sandy loam for the hardy; peat and loam for the tender kinds. Temp. for the latter, summer, 65° to 80°; winter, 55° to 60°.

HARDY.

- A. Arku'nsa* (Arkansa). 20. Purple. July. Arkansas. 1824. Deciduous climber.
- *Bæ'tica* (Bætic). 6. Purple. June. Spain. 1596. Deciduous climber.
- *Chile'nsis* (Chilian). 6. Purple, green. September. W. Ind. 1832. Deciduous half-hardy.
- *clemati'tis* (clematis-like). 2. Yellow. July. Britain. Herbaceous perennial.
- *lo'nga* (long-rooted). 2. Purple. July. South of Europe. 1548. Deciduous trailer.
- *pa'llida* (pale-flowered). 2. White, purple. Italy. 1640. Herbaceous perennial.
- *pistolo'chia* (pistolochia). 2. Purple. July. South of Europe. 1597. Deciduous trailer.
- *sagitta'ta* (arrow-shaped). 1. Purple. July. N. Amer. 1819. Herbaceous perennial.
- *serpenta'ria* (snake-root-like). 1. Dark purple. July. N. Amer. 1632. Deciduous trailer.
- *si'pho* (tube-bearing). 30. Yellow, brown. July. N. Amer. 1763. Deciduous climber.
- *tomento'sa* (downy). 20. Purple. July. N. Amer. 1799. Deciduous climber.

GREENHOUSE.

- A. arbore'scens* (tree-like). 20. Yellow, purple. July. America. 1737. Evergreen shrub.
- *cilia'ta* (fringed). Purple, yellow. Buenos Ayres.
- *glau'ca* (milky-green-leaved). 6. Purple. Barbary. 1785.
- *hi'rta* (hairy). 2. Purple. June. Chis. 1759. Herbaceous perennial.
- *rotu'nda* (round-rooted). 2. Dark purple. July. South of Europe. 1596. Herbaceous perennial.
- *sempervivens* (evergreen). 4. Purple. June. Candia. 1727.

STOVE.

- A. acumina'ta* (long-pointed). 10. Purple. Mauritius. 1822.
- *angu'i'cida* (snake-like). 5. White, brown. December. New Grenada. 1845. Twinning evergreen.
- *barba'ta* (bearded). 10. Purple. Caraccas. 1796.
- *biloba'ta* (two-lobed). 10. Purple. 1824.
- *bractea'ta* (bracted). 3. Purple. July. E. Ind. 1798. Evergreen trailer.
- *Brasilie'nsis* (Brazilian). 20. Yellow. Brazil. 1820.
- *cauda'ta* (tailed-lipped). 5. Lurid. June. Brazil. 1828. Deciduous twiner.
- — *fæ'tens* (stinking-flowered). 20. Purple, yellow. June. W. Ind. 1832.
- *cilio'sa* (fringed). 6. Purple, green. September. New Patagon. 1836.
- *cymbi'fera* (boat-flowered). 20. Purple. July. St. Paul. 1829.

- A. fæ'tida* (fetid). 20. July. Mexico. 1822.
- *giga'ntea* (gigantic-flowered). 20. Yellow, brown. July. Brazil.
- *gi'gas* (giant). 6. White, brown. June. Guatimala. 1842. Deciduous climber.
- *grandi'flo'ra* (large-flowered). 20. Jamaica. 1824.
- *hast'a'ta* (halbert-leaved). 16. July. Cuba. 1822.
- *hyperbo'rea* (northern). 20. Purple. May. India. 1836.
- *India* (Indian). 10. Purple. July. E. Ind. 1780.
- *labio'sa* (great-lipped). 20. Purple, green, yellow. July. Brazil. 1821.
- *ma'xima* (greatest). 20. Purple. July. New Spain. 1759.
- *odorati'ssima* (sweetest-scented). 10. Purple. July. Jamaica. 1737.
- *ornithoce'phala* (bird's-head). 20. Purple, brown. October. Brazil. 1838.
- *pandurifo'rnis* (fiddle-shaped). 10. Caraccas. 1823.
- *ri'ngens* (gaping). 20. Purple, green, yellow. July. Brazil. 1820.
- *sacca'ta* (pouch-flowered). 20. Purplish-red. September. Sylhet. 1829. Deciduous climber.
- *Suriname'nsis* (Surinam). 20. Yellow. Surinam. 1823.
- *tri'fida* (three-cleft-leaved). 15. Green. Caraccas. Deciduous climber.
- *triloba'ta* (three-lobed). 6. Purple. June. S. Amer. 1775.

ARISTOTE'IA. (In memory of the great Aristotle. Nat. ord., *Lindenblosses* [*Tiliaceæ*]. Linn., 11-*Dodecandria* 1-*Monogynia*.)

This genus has been placed among Homaliads, or Philadelphiams, by some botanists; but Dr. Lindley says (*Veg. King.*, 371), it has most affinity to this order. *A. Mac'qui* produces edible berries, of a dark purple colour, and wine is made from them in Chili. It is a hardy evergreen shrub. Layers in autumn, and cuttings in April, in sand, under a hand-light. Common, sandy soil.

- A. Mac'qui* (Macqui). 4. Whitish-green. May. Chili. 1735.
- — *variegata* (variegated-leaved). 4. Whitish-green. May. Gardens.

ARMENI'ACA. (From *Armenia*, the native country of the apricot. Nat. ord., *Almondworts* [*Drupacæ*]. Linn., 12-*Icosandria* 1-*Monogynia*.)

Hardy deciduous trees; generally budded in summer on plum-stocks, but some use apricot seedlings for budding peaches; rather heavy, loamy soil. See APRICOT.

- A. Briganti'aca* (Brigançon). 6. Pink. March. South of Europe. 1819.
- *dasyca'rpa* (thick-rooted). 15. White. April. 1800.
- — *persicifo'lia* (peach-leaved). 15. Pink. April. 1800.
- *Sibi'rica* (Siberian). 6. Pink. April. Siberia. 1788.
- *vulga'ris* (common apricot). 15. White. April. Levant. 1543.
- — *cordifo'lia* (heart-leaved). 15. White. March. Levant. 1548.
- — *flo're-ple'no* (double-flowered). 15. White. April.

- A. vulgaris foliis variegatis* (variegated-leaved). 15. White. April.
 — *ovalifolia* (oval-leaved). 15. White. March. Levant. 1548.

ARME'RIA. Thrift. (The Latin name for the *Sweet William*. Nat. ord., *Leadworts* [Plumbaginaceæ]. Linn., 5-Pentandria 5-Pentagynia.)

All hardy herbaceous perennials, except when otherwise specified. Division of the plant; seeds in spring; sandy, loamy soil. The tender kinds will require to be well drained, and receive the protection of a frame, or pit, during winter.

- A. allia'cea* (garlic-leaved). 1. White. June. Spain. 1798.
 — *alp'na* (alpine). 1. Purple. July. Carinthia.
 — *arenaria* (sand). 1. Pink. June. France.
 — *cephalo'tes* (round-headed). 1. Pink. June. Albaria. 1800.
 — *denticula'ta* (toothed). 2. Flesh. June. Naples. 1816.
 — *diantho'des* (pink-like). 1. Pink. June. Europe. 1810.
 — *fascicula'ta* (bunched). 2. Purple. July. Portugal. Greenhouse evergreen shrub.
 — *hi'rta* (hairy). 1. Pink. July. N. Africa. 1820.
 — *hu'milis* (dwarf). 1. Pink. June. South of Europe. 1817.
 — *juniperifo'lia* (juniper-leaved). 1. Pink. June. Spain. 1819.
 — *latifo'lia* (broad-leaved). 2. Light red. July. Albaria. 1740.
 — *litora'lis* (sea-shore). 1. Pink. July. South of Europe.
 — *maritima* (sea-side). 1. Red. July. Britain.
 — *monta'na* (mountain). 1. Pink. June. Scotland.
 — *pinifo'lia* (pine-leaved). 1. Pink. June. Portugal.
 — *plantagi'nea* (plantain-like). 1. Red. June. South of Europe. 1818.
 — *pu'ngens* (pungent). 1. Pink. June. Spain. 1818.
 — *scorzonerifo'lia* (scorzonera-leaved). 1. Scarlet. June. South of Europe. 1816.
 — *vulgaris* (common). 1. Red. July. Europe.
 — *a'lba* (white-flowered). $\frac{1}{2}$. White. September. Gardens.
 — *cocc'inea* (scarlet-flowered). $\frac{1}{2}$. Red. September. Gardens.

A'RNICA. (From *arnika*, lamb-skin; in reference to the texture of the leaves. Nat. ord., *Composites* [Asteraceæ]. Linn., 19-Syngenesia 2-Superflua. Allied to Groundsel.)

Hardy, dwarf, herbaceous plants; division of the plants in spring or autumn. They like a little peat incorporated with the soil. *A. Co'rsica* prefers bog-earth.

- A. Chv'sii* (Clusius's). 1. Yellow. July. Switzerland. 1819.
 — *corda'ta* (heart-shaped). 1. Yellow. July. Switzerland. 1819.
 — *Co'rsica* (Corsican). 1. Yellow. July. Corsica. 1824.
 — *doro'nicum* (leopard's-bane). 2. Yellow. July. Austria. 1816.
 — *glacia'lis* (icy). 1. Yellow. July. Switzerland. 1823.
 — *Helve'tica* (Swiss). 1. Yellow. July. Switzerland. 1819.
 — *lani'gera* (wool-bearing). 1. Yellow. July. Italy. 1827.

- A. monta'na* (mountain). 1. Yellow. July. Europe. 1731.
 — *scorpio'des* (scorpion-like). 1. Yellow. July. Austria. 1710.

ARNOPO'GON. Sheep's-beard. (From *arnos*, a lamb, and *pogon*, a beard; in reference to the bearded seeds. Nat. ord., *Composites* [Asteraceæ]. Linn., 19-Syngenesia 1-Æqualis. Allied to *Scorzonera*.)

Hardy plants; seed in March or April. Common garden-soil.

- A. a'sper* (rough). 2. Yellow. July. Montpellier. 1774. Annual.
 — *Cape'nsis* (Cape). 1. Yellow. July. Cape of Good Hope. 1818. Biennial.
 — *Dalecha'demp'ii* (Dalechamp's). 2. Light yellow. July. South of Europe. 1739. Perennial.
 — *picro'i'des* (picris-like). 1. Yellow. July. South of Europe. 1683. Annual.

ARO'NICUM. (From *arnica*, lamb-skin; in reference to the softness of the flower-heads. Nat. ord., *Composites* [Asteraceæ]. Linn., 19-Syngenesia 2-Superflua. Allied to *Doronicum*.)

A hardy, herbaceous, perennial, groundsel-like plant. Divisions; common soil.

- A. Alta'icum* (Altaic). Yellow. July. Siberia. 1783.

ARRACA'CHA. (Its Spanish name in South America. Nat. ord., *Umbellifers* [Apiaceæ]. Linn., 5-Pentandria 2-Digynia. Allied to *Conium*.)

A. esculen'ta, a native of the table-land of Grenada, produces large esculent roots, not unlike parsnips, but of a better quality. Stove tuberous perennial. Division of the roots; rich loam. Summer temp., 65° to 85°; winter, 55° to 60°.

- A. esculen'ta* (eatable). 3. Brownish. July. Santa Fe. 1823.

ARRHENATHE'RUM. (From *arrhen*, a male, and *ather*, a point; on account of the awns on the male spikes. Nat. ord., *Grasses* [Graminaceæ]. Linn., 23-Polygamia 1-Monœcia.)

This genus really should be reunited to *Holchus*. Perennial grasses; seeds; division. Common soil, as for any other grass.

- A. avena'ceum* (oat-like). 5. Apetal. June. Britain.
 — *mu'ticum* (awnless). 4. Apetal. July. Scotland.
 — *bulbo'sum* (bulbous). 3. Apetal. July. Germany.

ARROW-HEAD. See SAGITTA'RIA.

ARROW-ROOT. See MARA'NTA.

ARTA'BOTRYS. (From *aratao*, to suspend or support, and *botrys*, grapes; in reference to the way the fruit is supported by the curious tendril. Nat. ord., *Anonads* [Anonaceæ]. Linn., 13-Polyandria 6-Polygynia.)

The leaves of this plant are held in Java to be invaluable against cholera. Stove evergreen shrub. Cuttings of ripened wood in sand, under a bell-

glass, and in bottom-heat, in March or April. Sandy loam and peat, with a little rotten dung. Summer temp., 65° to 75°; winter, 50° to 55°.

A. odoratissima (sweetest-scented). 5. Brown. July. China. 1758.

ARTANE'MA. (From *aratao*, to support, and *nema*, a filament; in reference to a tooth-like process growing on the longer filaments. Nat. ord., *Figworts* [*Scrophulariaceæ*]. Linn., 14-*Didynamia* 1 *Gymnospermia*. Allied to *Torenia*.)

A greenhouse evergreen shrub. Seeds; cuttings of the half-ripened shoots in autumn or spring. Will keep over the winter in the greenhouse, but seeds may be sown in the open border, in the beginning of May, as an annual. Sandy loam and a little peat.

A. fimbriatum (fringed-corollaed). 3. Pale blue. August. Moreton Bay. 1830.

ARTEMISIA. Wormwood. (From *Artemis*, one of the names of Diana. Nat. ord., *Compositæ* [*Asteraceæ*]. Linn., 19-*Syngenesia* 1-*Æqualis*.)

Various species of *Artemisia*s, or Wormwoods, have been used as tonic, bitter, and aromatic medicines from remote ages. All hardy herbaceous perennials, except where otherwise specified. Annuals, by seed; those with branching, shrubby stems, and the whole of the greenhouse varieties, which are mostly shrubby, by cuttings; the hardy species, by dividing the roots. For greenhouse kinds, sandy loam, well drained; for the others, common soil. Greenhouse summer temp., 50° to 65°; winter, 40° to 45°.

A. abrotanum (southernwood). 4. Yellow, green. August. Europe. 1548. Hardy deciduous shrub.

— *hu'mile* (low). 1½. Yellow, green. September. South of Europe.

— *Tobolskianum* (*Tobolskian*). 5. Yellow, green. September.

— *A'fra* (African). 3. White. August. Greenhouse evergreen shrub.

— *alpina* (alpine). 1. Yellow, green. July. Caucasus. 1804.

— *aprica* (sunny). 2. 1834. Evergreen trailer.

— *arborescens* (tree-like). 10. July. Levant. 1640. Hardy evergreen shrub.

— *argentea* (silvery). 4. Yellow, green. June. Madeira. 1777. Greenhouse evergreen shrub.

— *cærulea* (bluish). 2. Yellow. September. England. Hardy evergreen shrub.

— *Chinensis* (Chinese *Mozu*). 4. Yellow. July. China. 1818. Greenhouse herbaceous.

— *dracunculius* (tarragon). 2. White, green. July. South of Europe. 1548.

— *frigida* (cold). 1. Yellow, green. August. Siberia. 1826.

— *furcata* (forked). 1. Yellow, green. July. Siberia. 1820.

— *Gallica* (French). 2. Brown. August. Britain.

— *glacialis* (icy). 1. Yellow, green. July. Switzerland. 1739.

— *Judeica* (Judean). 2. Yellow. August. 1774. Half-hardy evergreen.

— *lactiflora* (pale-flowered). 2. Pale white. November. Nepaul. 1828. Greenhouse evergreen.

— *Lednice'nsis* (*Lednise*). 2. Yellow. July. Carpathia. 1826. Hardy deciduous shrub.

A. maritima (sea). 1. Brown. July.

— *Marschalliana* (*Marschall's*). 1. Yellow. Caucasus. 1816.

— *mutellina* (*mutellina*). 1. Yellow. July. Alps, Europe. 1815.

— *Norvegica* (*Norwegian*). 1. Yellow. July. Norway. 1818.

— *orientalis* (*oriental*). 2. Yellow, green. July. Armenia. 1810.

— *Pallasii* (*Pallas's*). 1. Yellow, green. July. Siberia. 1820.

— *pectinata* (comb-leaved). 1. Brown. June. Dauria. 1806. Hardy annual.

— *peduncularis* (flower-stalked). 1. Yellow. July. Caucasus. 1818.

— *Pontica* (*Pontine*). 3. Yellow. September. Austria. 1570.

— *potentillifolia* (*potentilla-leaved*). 1. July. Siberia. 1818.

— *ramosa* (branchy). 2. Canaries. 1816. Greenhouse evergreen.

— *repens* (creeping). 1. Brown. June. Tartary. 1805. Hardy trailer.

— *rupestris* (hill). 2. Brown. August. Siberia. 1748.

— *saxatilis* (rock). 3. Brown. July. Hungary.

— *sericea* (silky-leaved). 2. White. June. Siberia. 1796.

— *spicata* (spiked). 1. Brown. June. Switzerland. 1790.

— *Taurica* (*Taurian*). 1. White, green. July. Tauria. 1818.

— *tenuifolia* (slender-leaved). 10. Yellow, green. October. China. 1732. Greenhouse evergreen.

— *Valentiana* (*Valentian*). 1. Yellow, green. July. Spain. 1839. Half-hardy evergreen.

— *vulgaris* (common wormwood).

— *variegata* (variegated-leaved). 2. Purple. August. Gardens.

— *Wulfenii* (*Wulfen's*). 1. Yellow, green. July. Switzerland. 1819.

ARTHROPO'DIUM. (From *arthron*, a joint, and *pous*, a foot; in reference to the flower-stalks being jointed. Nat. ord., *Lilyworts* [*Liliaceæ*]. Linn., 6-*Hexandria* 1-*Monogynia*. Allied to *Anthericum*.)

Greenhouse herbaceous perennials, except where otherwise specified. Seeds, offsets, and suckers. Sandy loam, and a little peat. Summer temp., 55° to 65°; winter, 40° to 45°.

A. cirratum (curled). 3. White. June. New Zealand. 1821.

— *fimbriatum* (fringed). 2. White. July. N. Holland. 1822.

— *minus* (smaller). 2. White. July. N. Holland. 1823.

— *paniculatum* (panicled). 3. White. August. N. S. Wales. 1800. Greenhouse bulb.

— *pendulum* (pendulous). 2. White. July. Teneriffe. 1816. Half-hardy.

ARTHROSTE'MMA. (From *arthron*, a joint, and *stemma*, a crown; the flower-stalks being jointed. Nat. ord., *Melastomads* [*Melastomaceæ*]. Linn., 8-*Octandria* 1-*Monogynia*. Allied to *Osbeckia*.)

Cuttings of small, firm, side-shoots in August or April, under a glass, in sandy soil. The stove species with heat; sandy loam, and a little peat.

A. fragile (brittle). 3. Rosy. June. Mexico. 1816. Stove evergreen.

A. nitidum (glossy-leaved). 2. Pale lilac. June. Buenos Ayres. 1830. Greenhouse ever-green.
— *versicolor* (changeable-flowered). 3. Pink. September. Brazil. 1825. Stove ever-green.

ARTICHOKE. (*Cynara scolymus*.) Many persons have thought that the name of this vegetable refers to the almost unswallowable part of it known by the name of "the choke;" but this is quite a mistake. The word artichoke is merely the English mode of spelling its French name, *artichaut*; and this is said, by old writers, to be a corruption of the Arabic name for it, *alcoocalos*, which has reference to the shape of its heads being like that of the pine-apple. The Arabs prize it highly, not only for its edible heads, but its roots as a purgative, and its gummy exudations as an emetic.

Varieties.—There are two varieties in cultivation, the *conical*, or *French*, of which the heads are green, and the scales of their calyx spreading; and the *globe*, tinged with purple, with the scales curved inwards and compactly. The artichoke is sometimes called the *globe artichoke*, on account of the round outline of its heads. These heads are boiled, and the bottom of each scale, or calyx, eaten with butter and salt. The bottom of these heads, which is the part named "the receptacle" by botanists, because it is the receptacle or part containing all the members of the flower, is very fleshy, and is cooked in various ways; being, also, sometimes dried, and used in winter.

Propagation.—It may be raised from seed; but the most expeditious and usual way is to plant suckers from the old roots in the spring. When the suckers are eight or ten inches high, in open weather, about the end of March, or early in April, select such as have much of their fibrous roots, and are sound, and not woody. The brown, hard part by which they are attached to the parent stem must be removed, and, if that cuts crisp and tender, the suckers are good, but, if tough and stringy, they are worthless. Further, to prepare them for planting, the large, outside leaves are taken off so low as that the heart appears above them. If they have been some time separated from the stock, or if the weather is dry, they are greatly invigorated by being put into water for three or four hours before they are planted. They should be set in rows,

four feet and a half by three feet apart, and about half their length beneath the surface. Turn a large flower-pot, or a sea-kale pot, over each, and water them abundantly every evening until they are established, as well as during the droughts of summer. The only other attention they require, during the summer, is the frequent use of the hoe, and an occasional supply of liquid-manure. It is also an excellent plan to have some mulch kept about their roots during dry weather, immediately after planting, and during the whole summer, and to remove all small, weak suckers about June. The plants will produce a succession of heads from July to October of the year they are planted. For about five years they will continue similarly productive during May, June, and July. At the end of five years a fresh bed should be made.

The *Artichoke's* heads attain a much larger size than they would otherwise, by twisting a piece of wire very tightly round the stem, about three inches below each, and thus preventing the reflux of the sap. No vegetable is more benefited than the artichoke by the application of sea-weed, or any other manure containing common salt.

To obtain Chards.—Those who require chards must make a plantation annually; for making the chards destroys the plants. After the best heads have been cut, early in July, the leaves are to be cut over within half a foot of the ground, and the stems as low as possible. In September or October, when the new shoots or leaves are about two feet high, they are bound close with a wreath of hay or straw, and earth or litter is drawn round the stems of the plants. The blanching is perfected in a month or six weeks. If the chards are wished late in the winter, the whole plants may be dug up before frost sets in, and laid in sand in their blanched state. In this way they may be kept for several weeks.

Gobbo.—The Italians, to make this, bend the stem of an artichoke down to a right angle, and the stalks of the leaves are bound together, and covered over so as to blanch. The result is a lump, which is eaten raw, with salt, and is tolerably good. In Italy it is used in the autumn and winter, and replaces radishes.

Winter Dressing.—As soon as a stem is cleared of all its heads in the summer, it should be broken down close to the

root; and early in November the beds should be dressed for the winter. Cut away the old leaves close to the ground, but without injuring the centre or side-shoots. Fork over the bed, throwing the earth in a ridge, about eight inches high, over each row, putting it close round each plant, but being careful to keep the heart free from the crumbs of soil. After this has been done, pile round every plant some long litter, or pea-haulm, three or four inches thick; and, to keep this from blowing away, as well as to help in preserving the roots from severe frosts, cover over the litter, or haulm, two inches deep with coal-ashes. The ashes may be turned into the soil in the spring, being a manure much liked by the artichoke.

Soil and Situation.—The finest heads are produced in a soil abounding in moisture; but in such they will not survive the winter. They should have a rich, deep loam allotted to them. Manure must be applied every spring; and the best compost for them is a mixture of three parts well-putrefied dung, and one part of fine coal-ashes. They should always have an open exposure, and, above all, be free from the influence of trees; for if beneath their shade or drip the plants spindle, and produce worthless heads.

Insect.—The leaves of the artichoke are liable to injury by a beetle. See *CASSIDA VIRIDIS*.

Saving Seed.—Select any number of the earliest and finest heads; and as soon as the flowers begin to decay, the heads should be turned, and tied downwards, so as to prevent the wet lodging in them, which would rot the seeds.

ARTOCARPUS. Bread-fruit. (From *artos*, bread, and *carpos*, fruit. The fruit, baked, resembles bread. Nat. ord., *Artocarpads* [Artocarpaceæ]. Linn., 21-*Monœcia* 1-*Monandria*.)

In this order we meet with such anomalies as the invaluable bread-fruit-tree of the tropics, the useful cow-tree of Caracass, and the virulent poison of the upas-tree of Java, side by side. Stove evergreen trees. Cuttings of ripened wood in sand, under a hand-light, and in a brisk, sweet, bottom-heat. Loamy soil. Summer temp., 60° to 70°; winter, 60° to 65°. The flowers of all the species are whitish-green.

- A. incisa* (cut-leaved). 50. South Sea Islands. 1793.
- *nucifera* (nut-bearing). 50. E. Ind. 1793.
- *integrifolia* (entire-leaved. *Jack-tree*). 60. June. E. Ind. 1779.
- *heterophylla* (variable-leaved). 60. E. Ind. 1778.

A'RU. (From *aron*, supposed to be an ancient Egyptian word. Nat. ord., *Arads* [Aracæ]. Linn., 21-*Monœcia* 9 *Polyandria*.)

All are propagated by division of the roots; best done when the plants cease growing, in autumn, or when they commence growing, in spring. Sandy loam will suit the most of them; the stove species should have a portion of peat. Winter temp. for them, from 50° to 60°. All are herbaceous perennials, except where otherwise particularized.

HARDY.

- A. atro-rubens* (dark-purple-streaked). 1. Brown. July. N. Amer. 1759.
- *bulbiferum* (bulb-bearing). 3. Purple. April. Bengal. 1813.
- *dracœnium* (green-dragon). 1. Green. June. N. Amer. 1759.
- *dracœnulus* (common-dragon). 3. Brownish-purple. July. South Europe. 1548.
- *Italicum* (Italian). 2. Light yellow. June. Italy. 1693.
- *orientale* (eastern). 1. June. Tauria. 1820.
- *palmatum* (hand-shaped). 2. 1825.
- *pictum* (painted). 2. Corsica. 1806.
- *proboscideum* (proboscis-like). 1. July. Apenn. 1818.
- *tenuifolium* (fine-leaved). 1. White. June. South Europe. 1570.
- *triphyllum* (three-leaved). 1. Brown. June. N. Amer. 1664.
- *zebrinum* (zebra). 1. Brown. June. N. Amer. 1664.

GREENHOUSE.

- A. crinitum* (hairy-sheathed). 1. Brown. April. Minorca. 1777.
- *ringens* (gaping). 1. June. Japan. 1800.
- *ternatum* (three-leafted). 1. Purple. July. Japan. 1774.

STOVE.

- A. campanulatum* (bell-shaped). 2. Purple. May. E. Ind. 1817.
- *colocasia* (colocasia). 2. Green. Levant. 1551. Tuberous-rooted. This is now a genus by itself.
- *divaricatum* (straggling). 2. Green. July. E. Ind. 1759. Tuberous-rooted.
- *hederaeum* (ivy-leaved). 1. Purple. June. W. Ind. 1793. Epiphyte.
- *Indicum* (Indian). 5. Brown. China. 1824. Evergreen.
- *integrifolium* (entire-leaved). 3. Green. June. 1825. Evergreen.
- *lingulatum* (tongue-leaved). 6. W. Ind. 1793. Epiphyte.
- *marginatum* (margined). 2. E. Ind. 1820.
- *obtusilobum* (blunt-lobed). 2. 1824.
- *Orizense* (Orissan). 1. Purple. June. S. Amer. 1820. Tuberous-rooted.
- *pedatum* (pedate). 1. S. Amer. 1820.
- *pentaphyllum* (five-leaved). 1. E. Ind. 1818.
- *ramosum* (branchy). 3. June. 1810. Evergreen.
- *sagittifolium* (arrow-leaved). 2. 1824.
- *sarmentosum* (runner-bearing). Brazil. 1835.
- *spirale* (spiral). 1. Brown. May. China. 1816.
- *trilobatum* (three-lobed). 1. Purple. June. Ceylon. 1714. Tuberous-rooted.
- *auriculatum* (eared). 1. Purple. June. Ceylon. 1714. Tuberous-rooted.
- *veno'sum* (veiny-purple-flowered). 2. Purple. June. 1794.

ARUNDO. Reed. (A word of doubtful derivation; perhaps from the Latin word *arundo*, a reed. Nat. ord., *Grasses* [*Graminaceæ*]. Linn., 3-*Triandria* 2-*Digynia*.)

The "gardener's garter" of the Scotch gardens is the *A. do'nax versicolor*. In England it is called ribbon grass, painted grass, Indian grass, and ladies' laces. Seeds and divisions; common soil.

A. do'nax (donax). 10. Apetal. July. South Europe. 1648.

— *versicolor* (striped). 3. Apetal. July. South Europe. 1648.

A'SARUM. Asarabacca. (From *a*, not, and *saron*, feminine; the application not obvious, but perhaps because too violent a medicine for women. Nat. ord., *Birth-worts* [*Aristolochiaceæ*]. Linn., 11-*Dodecandria* 1-*Monogynia*.)

A. Europæum is called *cabaret* in France, and is said there to be used by frequenters of pot-houses to produce vomiting. Hardy herbaceous plants, more curious than pretty. Divisions of the plant; common border; if with a little peat, all the better.

A. arifolium (arum-leaved). 1. Brown. June N. Amer. 1823.

— *Canadense* (Canadian). 1. Brown. June. Canada. 1713.

— *Europæum* (European). 1. Purple. May. England.

— *grandifolium* (large-leaved). 1. Brown. May. N. Amer. 1820.

— *Virginicum* (Virginian). 1. Brown. May. Virginia. 1759.

ASCARICI'DA. (From *ascaris*, an intestine worm, and *cado*, to kill; referring to its virtue in medicine. Nat. ord., *Composites* [*Asteraceæ*]. Linn., 19-*Syngenesia* 1-*Æqualis*.)

Allied to *Heterocoma*. Stove annuals; seeds in March, in heat; common soil. Temp., 60° to 75°.

A. anthelmintica (worm-killing). 1. Purple. August. E. Ind. 1770.

— *tripline'ria* (triple-nerved). 1. Purple. November. Brazil. 1825.

ASCLE'PIAS. Swallowwort. (The Greek name of *Æsculapius* of the Latins. Nat. ord., *Asclepiads* [*Asclepidaceæ*]. Linn., 5-*Pentandria* 1-*Monogynia*.)

All hardy herbaceous and sub-shrubby perennials, except when otherwise specified. The hardy species, chiefly by division of the root in April; the stove and greenhouse kinds, by the same process; and cuttings of the young shoots, when they begin to grow, in heat; and also seeds, kept over, and sown in heat, in February. Peat and loam, but most of the latter. The stove species will stand the winter if the temperature is not below 48°.

A. acuminata (long-pointed). 2. Red. July. N. Amer. 1826.

— *ame'na* (pleasing). 3. Purple. August. N. Amer. 1732.

— *amplexicaulis* (stem-clasping). 2. Red. July. N. Amer. 1816.

A. angustifolia (narrow-leaved). 3. White. July. Mexico. 1817.

— *cine'rea* (grey). 2. Brown. July. N. Amer. 1825.

— *citrifolia* (citron-leaved). 1. White. July. S. Amer. 1818. Stove herbaceous.

— *Curassavica* (Curassoa). 3. Scarlet. July. S. Amer. 1692. Stove herbaceous.

— *alba* (white). 1. White. July. S. Amer. Stove herbaceous.

— *decumbens* (decumbent). 2. Orange. July. N. Amer. Stove herbaceous.

— *Douglasii* (Douglas's). 14. Red. Autumn. West America. 1846.

— *exaltata* (lofty). 6. Purple. July. N. Amer. 1800.

— *incarnata* (flesh-coloured). 2. Purple. July. N. Amer. 1710.

— *linaria* (lead-flax-leaved). 2. White. July. Mexico. 1802. Greenhouse herbaceous.

— *linifolia* (flax-leaved). 3. White. July. Mexico. 1818. Greenhouse herbaceous.

— *longifolia* (long-leaved). 2. Pale purple. July. N. Amer. 1816.

— *Mexicana* (Mexican). 3. White. July. Mexico. 1821. Greenhouse evergreen.

— *nivea* (snowy). 3. White. August. N. Amer. 1730.

— *obtusifolia* (blunt-leaved). 3. Purple. July. N. Amer. 1820.

— *parviflora* (small-flowered). 3. White. September. N. Amer. 1774.

— *paupercula* (poor). 2. Red. July. N. Amer. 1817.

— *phytolaccoides* (phytolacca-like). 3. Purple. July. N. Amer. 1812.

— *polystachia* (many-spiked). 4. White. July. N. Amer. 1825.

— *pulchra* (fair). 2. Purple. July. N. Amer. 1732.

— *purpurascens* (purplish). 3. Purple. July. N. Amer. 1732.

— *quadrifolia* (four-leaved). 1. White, red. July. N. Amer. 1820.

— *rosea* (rosy). 1. Red. July. Mexico. 1824. Greenhouse herbaceous.

— *rubra* (red). 1. Red. July. Virginia. 1825.

— *Syriaca* (Syrian). 4. Purple. July. S. Amer. 1629.

— *tuberosa* (tuberous-rooted). 2. Orange. August. N. Amer. 1680. Hardy tuber.

— *variegata* (variegated). 4. White. July. N. Amer. 1597.

— *vestita* (clothed). 3. Yellowish-green. October. N. Amer. 1844.

— *verticillata* (whorl-leaved). 3. White, green. July. N. Amer. 1759.

ASCY'RUM. (From *a*, not, and *skyros*, roughness; plants not hard to the touch. Nat. ord., *Tutsans* [*Hypericaceæ*]. Linn., 16-*Monadelphia* 8-*Polyandria*.)

All, but one, greenhouse evergreens; cuttings of small shoots, pretty hard; placed in very sandy soil, under a bell-glass, any time during summer; peat and loam. Summer temp., 50° to 65°; winter, 38° to 45°.

A. amplexicaule (stem-clasping). 2. Yellow. August. N. Amer. 1823.

— *crux-Andree* (St. Andrew's cross). 2. Yellow. July. N. Amer. 1759.

— *hypericoides* (hypericum-like). 2. Yellow. August. N. Amer. 1759.

— *pumilum* (dwarf). 1. Yellow. July. Georgia. 1806. Half-hardy herbaceous.

— *stans* (standing). 2. Yellow. August. N. Amer. 1816.

ASHES are the remains of a substance which has undergone burning, and are as various in the proportions of their components as are the bodies capable of being burnt. Whatever be the substance burnt, the process should be made to proceed as slowly as possible; for, by such regulation, more carbon, or charcoal, is preserved in the ashes, which is the most valuable of their constituents. The simplest mode of effecting a slow combustion is to bank the burning substance over with earth, leaving only a small orifice, to admit the air sufficiently to keep up a smouldering fire.

Ashes have been usually recommended as a manure most useful to heavy soils; but this is a decided mistake. As fertilizers they are beneficial upon all soils; and they can never be applied in sufficient quantity to alter the staple of a too tenacious soil. To thirty square yards, twenty-eight pounds are an average application; and they cannot be put on too fresh.

Peat-ashes contain—

Silica (flint)	32
Sulphate of lime (gypsum)	12
Sulphate and muriate of soda (Glauber and common salt)	6
Carbonate of lime (chalk)	40
Oxide of iron	3
Loss	7

They are an excellent application to lawns, turnips, cabbages, potatoes, and peas.

Coal-ashes contain carbon, silica, alumina, sulphate of lime, iron and potash, carbonate of lime, and oxide of iron. They are a good manure for grass, peas, and potatoes. Sprinkled half an inch deep on the surface, over beans and peas, they hasten the germination of the seed, and preserve it from mice. They are also used for forming dry walks in the kitchen-department.

Soap-boilers' ashes contain—

Silica	35.0
Lime	35.0
Magnesia	2.3
Alumina (clay)	1.5
Oxide of Iron	1.7
— Manganese	1.8
Potash (combined with Silica)	0.5
Soda (do.)	0.2
Sulphuric Acid (combined with Lime)	0.2
Phosphoric Acid (do)	3.5
Common salt	0.1
Carbonic Acid (combined with Lime and Magnesia)	18.2

They are good for all crops, but especially grass and potatoes.

Wood-ashes and the ashes of garden-weeds generally contain silica, alumina, oxides of iron and manganese, lime, magnesia, potash, partly in the state of a silicate, soda, sulphates of potash and lime, phosphate of lime, chloride of sodium (common salt), and carbonates of lime, potash, and magnesia, with a considerable portion of charcoal. They are a good application to cabbages, potatoes, and peas.

Turf-ashes contain silica, alumina, oxides of iron and manganese, lime, magnesia, sulphates of potash and lime, phosphates of lime and magnesia, common salt, and charcoal. They have been used beneficially to grass, onions, carrots, beans, potatoes, and beet-root.

ASH-TREE. *Fra'xinus excelsior*.

ASIATIC-POISON BULB. *Cri'nium Asiaticum*.

ASIMINA. (A Canadian name, not explained. Nat. ord., *Anonads* [Anonaceæ]. Linn., 13-Polyandria 6-Polygynia.)

A. triloba is a fit companion to such plants as *Daphnes*, *Ill'iciums*, and *D'rcia pulu'stris* in British gardens. Sometimes by seed, but chiefly by layering the branches, towards the end of summer. Peat and loam.

A. grandiflora (large-flowered). 3. White. June. Georgia. 1820.

— *parviflora* (small-flowered). 3. Brown. May. N. Amer. 1806.

— *pygmaea* (pigmy). 2. White. N. Amer. 1812.

— *triloba* (three-lobed-flowered). 8. Pale purple. August. China. 1822.

ASPALATHUS. (From *a*, not, and *spuo*, to extract; in reference to the difficulty of extracting its thorns from a wound. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 16-Monadelphia 6-Decandria.)

With one exception, all greenhouse evergreen shrubs. Cuttings of half-ripened wood, in April, in sand; placed over sandy peat, well drained, kept shaded, and little water given, as they are apt to damp off. Loam and lumpy peat. Temp., summer, 55° to 65°; winter, 40° to 45°.

A. affinis (kindred). 3. Yellow. July? Cape of Good Hope. 1822.

— *albens* (white). 4. White. July. Cape of Good Hope. 1774.

— *araneo'sa* (cobwebbed). 3. Yellow. July. Cape of Good Hope. 1795.

— *argentea* (silvery-leaved). 2. Yellow. July. Cape of Good Hope. 1759.

— *asparagoides* (asparagus-like). 3. Yellow. July. Cape of Good Hope. 1812.

— *astroites* (starry). 2. Yellow. July. Cape of Good Hope. 1818.

— *callosa* (hardened). 3. Yellow. July. Cape of Good Hope. 1812.

— *caudicans* (whitish). 2. Pale yellow. July. Cape of Good Hope. 1774.

- A. carno'sa* (fleshy-leaved). 3. Yellow. July. Cape of Good Hope. 1795.
 — *capita'ta* (head-flowered). 5. Yellow. July. Cape of Good Hope. 1823.
 — *cheno'poda* (goose-foot). 3. Yellow. July. Cape of Good Hope. 1759.
 — *cilia'ris* (fringed). 2. Yellow. July. Cape of Good Hope. 1799.
 — *crassifo'lia* (thick-leaved). 2. Yellow. July. Cape of Good Hope. 1800.
 — *ericifo'lia* (heath-leaved). 2. Yellow. July. Cape of Good Hope. 1789.
 — *galio'des* (galium-like). 2. Yellow. July. Cape of Good Hope. 1817.
 — *genisto'des* (broom-like). 2. Yellow. July. Cape of Good Hope. 1816.
 — *globo'sa* (globular). 3. Orange. July. Cape of Good Hope. 1802.
 — *hi'spida* (stiff-haired). 2. Yellow. July. Cape of Good Hope. 1818.
 — *hy'strix* (porcupine). 2. Yellow. July. Cape of Good Hope. 1824.
 — *India* (Indian). 3. Red. July. E. Ind. 1759. Stove evergreen.
 — *laric'na* (larch-leaved). 2. Yellow. July. Cape of Good Hope. 1823.
 — *mucrona'ta* (spine-pointed). 3. Yellow. July. Cape of Good Hope. 1796.
 — *multifo'ra* (many-flowered). 2. Yellow. July. Cape of Good Hope. 1818.
 — *peduncula'ta* (long-flower-stalked). 6. Yellow. July. Cape of Good Hope. 1775.
 — *quingueso'lia* (five-leaved). 2. Yellow. July. Cape of Good Hope. 1816.
 — *seri'cea* (silky). 2. Yellow. July. Cape of Good Hope. 1816.
 — *spinosa* (spiny). 2. Yellow. July. Cape of Good Hope. 1824.
 — *squarro'sa* (suarrose). 2. Yellow. July. Cape of Good Hope. 1823.
 — *subula'ta* (awl-leaved). 2. Yellow. July. Cape of Good Hope. 1789.
 — *thymifo'lia* (thyme-leaved). 2. Yellow. July. Cape of Good Hope. 1825.
 — *unifo'ra* (single-flowered). 3. Yellow. July. Cape of Good Hope. 1812.

ASPA'RAGUS. (From *a*, intensive, and *sparasso*, to tear; in reference to the strong prickles of some species. Nat. ord., *Lilyworts* [Liliacæ]. Linn., 6-*Hexandria* 1-*Monogynia*.)

The *A. officina'lis* is well known in our kitchen-gardens: it, as well as the other hardy kinds, is propagated chiefly by seeds, and rejoices in rich, light loam, well-drained. The stove and greenhouse varieties are propagated chiefly by dividing the roots, and prefer sandy loam and peat. All herbaceous perennials, except where otherwise specified.

HARDY.

- A. ama'rus* (bitter). 4. Green. July. France. 1824.
 — *Broussone'ti* (Broussonet's). 2. Canaries.
 — *Dahu'ricus* (Dahurian). 3. Green. April. Dauria. 1823.
 — *longifo'tius* (long-leaved). 3. White. July. Siberia. 1827.
 — *marit'imus* (maritime). 2. Green. June.
 — *officina'lis* (official). 4. Green. July. England.
 — *sylva'ticus* (wood). 2. Green. July. Hungary. 1819.

- A. tenuifo'tius* (fine-leaved). Yellow. June. Hungary.
 — *verticilla'ris* (whorl-leaved). 2. White. July. Caucasus. 1752.

GREENHOUSE.

- A. acutifo'tius* (acute-leaved). 2. Whitish-green. Spain. 1640. Evergreen shrub, half-hardy.
 — *Æthio'picus* (Ethiopian). 3. White. Cape of Good Hope. 1816. Evergreen shrub.
 — *a'lbus* (white). 12. White. Spain. 1540. Half-hardy.
 — *Asia'ticus* (Asiatic). 3. White. Asia. 1759. Evergreen shrub.
 — *Cape'nsis* (Cape). 4. Green. April. Cape of Good Hope. 1691. Evergreen shrub.
 — *declina'tus* (down-bent). 5. Whitish-green. Cape of Good Hope. 1759. Half-hardy.
 — *decu'mbens* (decumbent). 2. Whitish-green. April. Cape of Good Hope. 1792.
 — *depe'ndens* (drooping). 4. White. June. Cape of Good Hope. 1819. Evergreen twiner.
 — *grandifo'trus* (large-flowered). White. July. Teneriffe. 1823. Herbaceous climber.
 — *ho'rridus* (horrid). 4. White. June. South of Europe. 1800. Half-hardy evergreen twiner.
 — *la'ncens* (lance-leaved). White. May. Cape of Good Hope. 1811. Herbaceous climber.
 — *laric'nus* (larch-like). White. May. Cape of Good Hope. 1816.
 — *Nivena'nus* (Niven's). Whitish-purple. May. Cape of Good Hope. 1811.
 — *racemo'sus* (racemose). 3. Whitish-green. E. Ind. 1808. Evergreen shrub.
 — *retrofra'ctus* (backwards-bent). 4. White. July. Africa. 1759. Evergreen twiner.
 — *sca'ndens* (climbing). 6. Green. Cape of Good Hope. 1795. Evergreen climber.
 — *Smithia'nus* (Smith's). Teneriffe. 1629. Evergreen shrub.
 — *stipula'ceus* (large-stipuled). 4. White. Cape of Good Hope. 1821. Evergreen twiner.
 — *subula'tus* (awl-leaved). 3. Cape of Good Hope. 1811. Evergreen shrub.

STOVE.

- A. falca'tus* (sickle-leaved). 3. Whitish-green. E. Ind. 1792. Evergreen shrub.
 — *fleuso'sus* (zigzag). 3. Whitish-green. July. Cape of Good Hope. 1800. Evergreen shrub.
 — *sarmento'sus* (twiggy). 6. Whitish-green. August. Ceylon. 1810. Evergreen twiner.

ASPA'RAGUS (*Aspa'ragus officina'lis*) was, by the old gardeners, called *sperage*, and by the modern vulgar, *grass*, or *sparrow-grass*. The small heads are sometimes spoken of as *sprue*.

Varieties.—There are only two varieties, the *red-topped* and the *green-topped*: the first is principally cultivated. There are said to be a few sub-varieties, which derive their names from the place of their growth, and are only to be distinguished for superior size or flavour, which they usually lose on removal from their native place. The principal of these is known as the *qiant*; but this

loses its characteristics if grown in soil less rich.

Soil best suited to this vegetable is a fresh, sandy loam, made rich by the abundant addition of manure. It should be trenched from two feet to two feet and a half deep. This depth of good, rich soil, on a dry sub-soil, is ample to yield the very best of heads, if the yearly successive management be attended to.

Situation.—The bed should enjoy the influence of the sun during the whole of the day, as free as possible from the influence of trees and shrubs, and ranging north and south. The sub-soil should be dry, or the bed kept so by being founded on rubbish, or other material, to serve as a drain. The space of ground required for the supply of a small family is at least eight square perches. If less, it will be incapable of affording one hundred heads at a time. Sixteen perches will, in general, afford two or three hundred every day, in the height of the season.

Sowing.—To raise plants, sow any time, from the middle of February to the beginning of April, in drills, one inch deep, and one foot apart, if the seedlings are to be transplanted; but two feet apart, if they are to remain where sown, as Mr. Barnes does at Bicton, for the purpose of taking up every alternate row for forcing. He thus leaves his permanent crop on the level ground in two rows, at four feet distance. Between these he plants summer crops, such as French beans, lettuce, spinach, or cauliflowers. Finer heads are to be expected by this wide-row system; but the most complete and neatest way would be to line out beds, four and a half feet wide, in which to sow four rows of seeds, one foot apart, as directed above, leaving three-feet alleys. This will be found the best, for small gardens in particular.

Culture in Seed-bed.—If dry weather, the bed should be refreshed with moderate but frequent waterings; and, if sown as late as April, shade is required, by means of a little haulm, during the meridian of hot days, until the seeds germinate. Care must be taken to keep free from weeds, though this operation should never commence until the plants are well above ground, which will be in the course of three or four weeks from the time of sowing. Sprinkle them about twice a month with salt, and supply them once a week with a good soaking of liquid-

manure, during the growing season. Towards the end of October, as soon as the stems are completely withered, they must be cut down, and well-putrefied dung spread over the bed, to the depth of about two inches. This serves to increase the vigour of the plants the following year. About March in the next year thin the plants to one foot apart; and those removed may be transplanted into a bed, twelve inches apart, if it is intended that they should attain another or two years' further growth before being finally planted out; or they may be planted immediately into the beds, for production. It may be here remarked, that the plants may remain one or two years in the seed-bed. They will even succeed after remaining three; but if they continue four, they generally fail when transplanted.

Time of Planting.—The best time is the end of March, if the soil is dry, and the season warm and forward; otherwise it is better to wait until the commencement of April. A very determinate signal of the appropriate time for planting is when the plants are beginning to grow. If moved earlier, and they have to lie torpid for two or three months, many of them die, or, in general, shoot up very weak.

Construction of the Beds.—Have them four and a half feet wide. The situation should be fixed upon a month or two previously to making and planting the beds. The whole should be trenched two feet to two feet and a half deep, and thoroughly well manured, as the work goes on, with rich, thoroughly-decayed manure. When all is trenched and manured in this way, give a good surface-dressing of salt, which will wash in with rains. After lying in this way for a month, give the whole another surface-dressing with similar manure, and double-dig or trench the whole over again, leaving the surface rough and open, giving the whole another salting, and let it lie in this way until the time for planting. Previously to marking out the beds, the whole should have another thorough good digging over, making the surface neat and even as the work goes on.

Mode of Planting.—The plants being taken from the seed-bed carefully with a narrow-pronged dung-fork, with as little injury to the roots as possible, they must be laid separately and evenly together, for the sake of convenience whilst plant-

ing, the roots being apt to entangle, and cause much trouble and injury in parting them. They should be exposed as short a time as possible to the air; and, to this end, it is advisable to keep them, until planted, in a basket covered with a little sand. The mode of planting is to form drills, or narrow trenches, five or six inches deep, and one foot apart, cut out with the spade, the line-side of each drill being made perpendicular; and against this the plants are to be placed, with their crowns one and a half or two inches below the surface, and twelve inches asunder. The roots must be spread out wide, in the form of a fan, a little earth being drawn over each, to retain it in its position whilst the row is proceeded with. For the sake of convenience, one drill should be made at a time, and the plants inserted and covered completely before another is commenced. When the planting is completed, the bed is to be lightly raked over, and its outline distinctly marked out. Care must be had never to tread on the beds (they are formed narrow to render it unnecessary); for everything tending to consolidate them is injurious, as, from the length of time they have to continue, without a possibility of stirring them to any considerable depth, they have a closer texture than is beneficial to vegetation. Water must be given, in dry weather, daily, until the plants are established. The paths between the beds are to be three feet wide. The first season after planting the beds, a crop of radishes may be sown upon them without very much injury to the young plants, if the radishes are all drawn off early. It too often happens that new asparagus-beds are ruined by being pestered with other crops; but a row, or even two rows, of either lettuces or spinach, may be sown in the alleys.

Subsequent Cultivation.—Throughout the year care must be taken to keep the beds clear of weeds; and, in May and summer, apply liquid-manure twice a week plentifully, giving a sprinkling of salt once a month. In the latter end of October, or commencement of November, the beds are to have the winter dressing. The stalks must be cut down and cleared away; the beds cleaned, if weedy, and carefully forked up. A thoroughly good dressing of manure is put all over the beds equally, and the alleys forked over

too; whilst, for the sake of giving the whole a finish, a line is put down each side of the alley, the edges made up a little, and a few crumbs from the alleys thrown upon the beds, and the edges marked out with the point of the spade. The work is then done for the winter.

Spring Dressing.—In the month of March the beds are again forked over carefully, the manure and soil well broken up and mixed together, and some of the rougher parts of manure, with all the rakings, forked into the alleys; after which the beds are raked over, and lettuces are there sown or planted in succession for the summer months.

Production.—In the May of the second year after planting, if they are very highly cultivated with liquid-manure, cutting may commence; but, under ordinary culture, cutting had better not begin until the third year. We recommend the heads to be allowed to grow about six inches above the ground before they are cut, and then to be cut level with the surface. By this mode, first suggested by Mr. Weaver, the whole shoot is eatable, all risk of injuring other rising shoots is avoided, and the flavour is much superior to that cut when only just rising above the surface. Cutting should cease at the end of June, or very early in July.

Forcing may be commenced at the end of November. For this purpose, take up the plants from an old bed, or others raised purposely, when they are three or four years old. Carefully commence on one side one of the outer rows of the bed, by digging out a trench, forking the earth as much as possible from underneath the plants, so that they may easily, and without straining or injuring their roots, be moved out entirely, by thrusting down the fork behind them. Be very careful, at the same time, that the buds about the crowns of the plants are not injured by the fork, or trampled upon, or bruised in any way during their removal. Obtaining handsome, strong shoots depends much upon the care with which the plants are thus handled. Asparagus is very easily forced, and is very productive under the treatment when properly managed. It may be forced in various modes through the winter; but those who have the command of hot water, to give it a moderate bottom-heat, will find this give the least trouble. It

may also be grown in winter, in any kind of forcing-house, either in boxes filled with earth, or in a pit filled with leaves, tan, or other fermenting materials. Melon-pits and frames may be used for the same purpose. The hotbed of fermenting materials, thoroughly well worked previously to being made up into the beds, may give but a slight heat, and on it may be put six inches of old tan, or leaf-mould. Put the asparagus-plants into this, and keep them, during the winter months, about one foot from the glass. Cover them, at first, only slightly with the old tan, or leaf-mould; but, in ten days or a fortnight, add three or four more inches of the same kind of covering. Take care that altogether the crowns of the plants are not covered more than five or six inches deep. When the plants have begun to grow freely, and the shoots begin to appear through the surface, give them some weak, slightly-warmed, or tepid liquid-manure, adding to each gallon of it two ounces of common salt.

Quantity to be Forced.—To keep a supply during the winter months, commencing the first week in November, use two or three light cucumber-frames; and a successional bed should be made up in about a fortnight or three weeks afterwards, and so on until the end of March, taking the advantage of fine, open weather for taking up and planting.

Insects.—See CRIOCERIS ASPARAGI.

To obtain Seed.—Some shoots should be marked, and left in early spring; for those which are allowed to run up after the season of cutting is over are seldom forward enough to ripen their seeds perfectly. In choosing the shoots for this purpose, those only must be marked which are the finest, roundest, and have the closest heads; those having quick-opening heads, or are small or flat, are never to be left. More are to be selected than would be necessary if each stem would assuredly be fruitful; but, as some of them only bear unproductive blossoms, that contingency must be allowed for. Each chosen shoot must be fastened to a stake, which, by keeping it in its natural position, enables the seed to ripen more perfectly. The seed is usually ripe in September, when it must be collected, and left in a tub for four or six weeks, for the pulp and husk on the berry to decay, when it may be

well cleansed in water. The seeds sink to the bottom, and the refuse floats, and will pass away with the water as it is gently poured off. By two or three washings, the seeds will be completely cleansed, and, when perfectly dried by exposure to the sun and air, may be stored for use.

ASPA'SIA. (From *aspozomai*, I embrace; the column embraced by the labellum. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-Gynandria 1-Monandria.)

Stove orchids, best grown in baskets containing sphagnum, peat, and broken crocks, with charcoal; rather dry during winter, and moister when growing. Summer temp., 65° to 80°; winter, 55° to 65°.

- A. epidendroides* (epidendrum-like). 1. Whitish-yellow. Panama. 1833.
- *luna'ta* (crescent-marked). Brazil. 1844.
- *lutea* (yellow). Yellow. March. Guiana. 1838.
- *variegata* (variegated-flowered). 1. Green and yellow. February. Panama. 1836.

ASPEN. *Po'pulus tre'mula*.

ASPERULA. Woodroff. (The diminutive of *asper*, rough; in reference to the rough leaves. Nat. ord., *Stellates*, or *Star-worts* [Galiaceæ]. Linn., 4-Tetrandria 1-Monogynia.)

All hardy herbaceous plants, except where otherwise described. Division of the plant in March; common soil. They do not dislike shade. *A. trichoides* from seed.

- A. alpi'na* (alpine). †. White. July. Caucasus. 1820.
- *Arcadie'nsis* (Arcadian). †. Red. April. Arcadia. 1819.
- *arista'ta* (awned). 1. Yellow. July. South of Europe. 1823.
- *brevifolia* (short-leaved). †. Purple. July. Europe. 1825. Half-hardy evergreen trailer.
- *crassifolia* (thick-leaved). 1. White. June. Levant. 1775.
- *cynan'chica* (cynanche-like). 1. Flesh. July. England.
- *galioi'des* (galium-like). 1. White. July. South of Europe. 1710.
- *Tyra'ica* (Tyrian). †. White. May. Levant. 1829.
- *hirsu'ta* (soft-haired). 1. White. June. Portugal. 1819.
- *hi'rta* (bristly). 1. Purple. July. Pyrenees. 1817.
- *inca'na* (hoary). Purple. June. Crete. 1823.
- *langu'ta* (smoothed). 1. White. June. South of Europe. 1775.
- *longifo'ra* (long-flowered). 1. Yellowish-purple. July. Hungary. 1821.
- *longifo'ra* (long-leaved). 1. Red. July. South of Europe. 1820.
- *monta'na* (mountain). 1. Pink. July. Hungary. 1801.
- *ni'tida* (glossy). 1. Pink. August. Greece. 1829.
- *odora'ta* (sweet-scented). 1. White. June. Britain.
- *Pyrena'ica* (Pyrenean). 1. Flesh. July. Spain. 1821.

- A. rigida* (stiff). 1. Red. July. Greece. 1819.
— sca'bra (rough). 1. White. July. Italy. 1824.
— scutella'ris (skull-cap). 1. Russia. 1838.
— supi'na (supine). 1. Pink. June. Caucasus. 1821.
— tauri'na (bull). 1. White. June. Italy. 1739.
— tinctor'ia (dyer's). 1. Pink. July. Europe. 1764.
— tomento'sa (downy). 1. Red. July. South of Europe. 1817.
— tricho'des (hairy). White. June. Persia. 1828. Hardy annual.

ASPHALT, BITUMEN, or JEW'S PITCH, is found floating on the Dead Sea, and elsewhere. It becomes very hard by exposure to the air; and its name has been appropriated to various artificial preparations, all of which owe their properties to the boiled gas-tar which enters into their composition. Thus the *asphalt felt* is rendered waterproof for shed-roofing, &c., by being soaked in that tar; and *asphalt walks* are most dry and excellent when made as follows:—Take two parts of very dry *lime-rubbish*, and one part *coal-ashes*, also very dry, and both sifted fine. In a dry place, on a dry day, mix them, and leave a hole in the middle of the heap, as bricklayers do when making mortar. Into this pour boiling-hot *coal-tar*; mix, and, when as stiff as mortar, put it three inches thick where the walk is to be. The ground should be dry, and beaten smooth. Sprinkle over it coarse sand; when cold, pass a light roller over it, and in a few days the walk will be solid and waterproof.

ASPHODELUS. Asphodel. (From *a*, not, and *sphallo*, to supplant; the stately flowers not easily surpassed. Nat. ord., *Lilyworts* [Liliaceæ]. Linn., 6-*Hexandria* 1-*Monogynia*.)

Hardy herbaceous perennials, except where otherwise specified. Dividing the roots, except the stove annuals, which may be raised from seed. Grown in any common soil. *A. interme'dius* requires the protection of a cold pit in winter; temperature for it at that period, 38° to 45°.

- A. aesti'vus* (summer). 2. White. July. Spain. 1820.
— al'bus (white). 2. White. April. South of Europe. 1820.
— Asia'ticus (Asiatic). White. June. Levant. 1824.
— capilla'ris (hair-leaved). 4. Pale yellow. June. South of Europe. 1812.
— clava'tus (club-seeded). 1. White. July. E. Ind. 1808. Stove annual.
— Cret'icus (Cretan). 2. Yellow. June. Candia. 1821.
— fetulo'sus (pipe-stalked). 2. White. August. South of Europe. 1596.
interme'dius (intermediate). 2. White. July. Canaries. 1822. Half-hardy perennial.)

- A. lu'teus* (yellow). 3. Yellow. June. Sicily. 1596.
— microca'rpus (small-podded). Dalmatia. 1831.
— proli'ferus (proliferous). 1. White. August. Armenia. 1824. Hardy annual.
— ramo'sus (branchy). 2. White. April. South of Europe. 1551.
— Sibi'ricus (Siberian). 2. Pale yellow. May. Siberia. 1829.
— Tau'ricus (Taurian). 3. White. June. Tauria. 1812.
— tenu'ior (slenderer). 2. White. July. Siberia. 1824.

ASPIDIO'TUS. See COCCUS.

ASPIDI'STRA. (From *aspideseon*, a little round shield; shape of flower, or, probably, in reference to the mushroom-shaped stigma by which Aspidistæ are characterised. Nat. ord., *Lilyworts* [Liliaceæ]. Linn., 8-*Octandria* 1-*Monogynia*.)

Stove herbaceous perennials, more curious than ornamental; suckers; common soil. Summer temp., 60° to 75°; winter, 50° to 60°.

- A. elati'or* (taller). 2. Brown. October. Japan. 1835.
— variega'ta (variegated). 2. Brown. October. Japan. 1835.
— lu'rida (lurid). 1. Purple. July. China. 1832.
— puncta'ta (dotted). 1. Purple. March.

It is questionable whether these would not all be hardy in the south of England.

ASPIDIUM. Shield Fern. (From *aspidion*, a little buckler; the shape of the spores or seed-apparatus. Nat. ord., *Ferns* [Polypodiaceæ]. Linn., 24-*Cryptogamia* 1-*Filices*.)

Spores or seed, and division of the roots, chiefly the latter; doing so before they begin to grow freely. Shady situation; loam and peat. The greenhouse and stove kinds should have their appropriate treatment; those of the latter should not have the temperature lower than 50° in winter. See FERNS for general culture.

HARDY.

- A. alpi'num* (alpine). 1. Brown. July. South of Europe. 1825.
— atoma'rium (atomed). 1. Brown. July. N. Amer. 1820.
— bulbi'ferum (bulb-bearing). 1. Brown. July. N. Amer. 1638.
— denta'tum (toothed). 1. Brown. June. Wales.
— diluta'tum (widened-crested). 2. Brown. June. Britain.
— dumeto'sum (thicket). 1. Brown. July. Britain.
— fra'gile (brittle). 1. Brown. July. Britain.
— Halle'ri (Haller's). Brown, yellow. April. Switzerland. 1824.
— irri'guum (plashy). 2. Brown. July. Britain.
— monta'nium (mountain). 1. Brown. June. Switzerland. 1819.
— re'gium (royal). 1. Brown. July. Britain.
— Rhe'ticum (Rætan). ♂. Brown. June. Britain.

GREENHOUSE.

- A. æ'muium* (rival). 2. Brown. July. Madeira. 1779.

STOVE.

- A. ala'tum* (winged). Brown, yellow. July. E. Ind.
— cicuta'rium (cowbane-like). 2. Brown. July. Jamaica. 1820.
— decur'rens (decurrent). 2. Brown, yellow. May. Island of Luzon.
— exalta'tum (lofty). 4. Brown. July. Jamaica. 1793.
— gra'nde (grand). Brown, yellow. May. Island of Luzon.
— heracleifo'lum (cow-parsnip-leaved). Yellow. June.
— Hooke'ri (Hooker's). Brown, yellow. June. W. Ind. 1812.
— indivi'sum (whole-leaved). 2. Brown. July. Jamaica. 1824.
— latifo'lum (broad-leaved). Brown, yellow. May. Island of Luzon.
— macrophy'lum (large-leaved). 3. Brown. August. W. Ind. 1816.
— pa'tens (spreading). 2. Brown. July. Jamaica. 1784.
— pectina'tum (comb-like). 1. Brown. July. W. Ind. 1820.
— pu'ngens (stinging). Brown. W. Ind.
— repa'ndum (wavy-leaved). Brown. July. Island of Luzon.
— rhizophy'lum (root-leaved). $\frac{1}{2}$. Brown. July. Jamaica. 1820.
— Singaporiana'm (Singapore). Brown, yellow. April. Malacca.
— trapezo'i'des (trapezium-like). 1. Brown. July. Jamaica. 1824.
— trifolia'tum (three-leaved). 2. Brown. July. W. Ind. 1769.

By some botanists a new genus has been created, under the name of *Athy'rium*, merely to include our Lady-Fern, and some others which they think only varieties of it; but we have referred them all to the genus *Nephrodium*.

ASPLE'NIUM. Spleenwort. (From *a*, not, and *splen*, spleen; referring to its supposed medicinal properties. Nat. ord., *Ferns* [*Polypodiaceæ*]. Linn., 24-*Cryptogamia* 1-*Filices*.)

For general management see *Aspi'dium* and *Ferns*. In propagating from the spores on the back of a leaf, prepare a pot well-drained, with some peaty soil; shake the spores all over it; cover with a square of glass; and set the pot in a shady place until the plants are up.

HARDY.

- A. adian'tum-nigrum* (black adiantum). 1. Brown. August. Britain.
— alternifo'lum (alternate-leaved). 1. Brown. July. Scotland.
— angustifo'lum (narrow-leaved). 1. Brown. July. N. Amer. 1812.
— athy'rium (athyrium). 2. Brown. August. N. Amer. 1823.
— ebe'neum (ebony-stalked). 1. Brown. July. N. Amer. 1779.
— filix-fœ'mina (female fern). 2. Brown. April. Britain.
— fonta'num (fountain). 1. Brown. July. England.
— Halle'ri (Haller's). 1. Brown. July. Switzerland. 1819.
— cœula'tum (lanceolate). 1. Brown. August. England.

- A. mari'num* (sea). 1. Brown. July. Britain.
— melanocaul'on (black-stalked). 1. Brown. July. N. Amer. 1812.
— Michaux'ii (Michaux's). 2. Brown. August. N. Amer. 1823.
— monta'num (mountain). 1. Brown. July. N. Amer. 1812.
— rhizophy'lum (rooting-leaved). $\frac{1}{2}$. Brown. July. N. Amer. 1680.
— ru'ta-mura'ria (wall-rue). $\frac{1}{2}$. Brown. July. Britain.
— septentriona'le (northern). 1. Brown. July. Britain.
— thelypteroid'es (thelypteris-like). 1. Brown. July. N. Amer. 1823.
— trich'o'manes (maiden-hair). $\frac{1}{2}$. Brown. July. Britain.
— vi'ride (green). 1. Brown. June. Britain.

GREENHOUSE.

- A. acu'tum* (acute). 2. Brown. April. Teneriffe. 1818.
— ambi'guum (doubtful). 1. Brown. W. Ind.
— alterna'tum (tapering). 1. Brown. July. N. Holland. 1824.
— bulbi'ferum (bulb-bearing). 1. Brown. July. New Zealand. 1820.
— Canarie'nse (Canary). Brown. July. Canaries. 1824.
— de'ntes (sharp-toothed). Brown. June. Cape of Good Hope. 1790.
— diffo'rme (irregular). 1. Brown. August. N. Holland. 1823.
— diversifo'lum (various-leaved). 2. Brown. June. Norfolk Islands. 1831.
— falca'tum (sickle-formed). 1. Brown. July. N. Holland. 1825.
— fissum (cleft-fronds). Brown. April. Hungary. 1825.
— flabellifo'lum (fan-leaved). 1. Brown. July. N. Holland. 1820.
— flo'ccidum (feeble). New Zealand. 1823.
— Madere'nse (Madeira). 1. Brown. July. Madeira. 1823.
— monanthemum (one-flowered). 1. Brown. July. Cape of Good Hope. 1790.
— obtusa'tum (blunt-fronded). 2. Brown. July. N. Holland. 1824.
— palma'tum (hand-shaped). $\frac{1}{2}$. Brown. July. South of Europe. 1816.
— Petra'rche (Petrarch's). $\frac{1}{2}$. Brown. August. France. 1819.
— polyo'don (many-toothed). New Zealand. 1843.
— Shephe'rdis (Shepherd's). 1. Brown. August. N. Holland. 1820.

STOVE.

- A. ala'tum* (winged). 1. Brown. W. Ind.
— auri'tum (eared). 1. Brown. September. S. Amer. 1829.
— biauri'tum (two-eared). 1. Brown. July. W. Ind.
— biparti'tum (equal-parted). 2. Brown. August. Jamaica. 1820.
— bise'ctum (bisected). 2. Brown. July. Jamaica. 1821.
— Brasile'nse (Brazilian). 1. Brown. July. Brazil. 1822.
— calophy'lum (beautiful-leaved). Brown. June. Island of Luzon.
— cicuta'rium (cowbane-like). 1. Brown. August. W. Ind. 1820.
— crena'tum (round-notched). Brown. September. Brazil. 1836.
— cultri'fo'lum (knife-leaved). 1. Brown. W. Ind. 1820.

- A. cuneatum* (wedge-shaped). 1. Brown. September. W. Ind. 1832.
 — *dentatum* (toothed). 1. Brown. July. W. Ind. 1820.
 — *depressum* (depressed). 1. Brown. August.
 — *dimidiatum* (halved). Brown. September. W. Ind. 1827.
 — *elongatum* (elongated). Brown; yellow. June. Malacca. 1840.
 — *erosum* (jagged-leaved). Brown, yellow. June. W. Ind.
 — *formosum* (beautiful). 1. Brown. June. W. Ind. 1822.
 — *fragrans* (fragrant). 1. Brown. August. Jamaica. 1793.
 — *laeteum* (milky). Yellow. April. W. Ind.
 — *latum* (gray). W. Ind.
 — *longissimum* (longest). Brown. May. Malacca. 1840.
 — *lucidum* (shining). Yellow. May. W. Ind.
 — *nidus* (bird's-nest). 2. Brown. August. E. Ind. 1820.
 — *obtusifolium* (obtusely-leaved). ♀. Brown. Jamaica. 1839.
 — *oligophyllum* (few-leaved). Brown. Brazil. 1841.
 — *otites* (otites). 1841.
 — *persicifolium* (peach-leaved). Brown. Island of Luzon.
 — *planicaule* (smooth-stalked). E. Ind. 1841.
 — *præmorsum* (jagged-pointed). ♀. Brown. August. Jamaica. 1793.
 — *puberulum* (fair). Brown. June. Jamaica.
 — *pumilum* (dwarf). 1. Brown. July. W. Ind. 1823.
 — *radicans* (rooting). 1. Brown. June. W. Ind. 1820.
 — *resectum* (shredded). 1. Brown. July. Mauritius. 1820.
 — *rhizophorum* (root-bearing). 1. Brown. August. Jamaica. 1793.
 — *salicinum* (willow-like). 1. Brown. May. E. Ind. 1839.
 — *salicifolium* (willow-leaved). 1. Brown. June. W. Ind.
 — *serratatum* (saw-leaved). 2. Brown. August. W. Ind. 1793.
 — *serrulatum* (minutely-toothed). Brownish-yellow. June. India.
 — *scolopendroides* (hart's-tongue-like). Brown. July. Island of Leyte. 1840.
 — *striatum* (striated). 1. Brown. August. W. Ind. 1793.
 — *sulcatum* (furrowed). Brown. July. W. Ind. 1827.
 — *vittæforme* (ribbon-like). Brownish-yellow. Island of Luzon.
 — *viviparum* (viviparous). 1. Brown. August. Mauritius. 1820.
 — *zamefotium* (zamia-leaved). 2. Brown. July. Caraccas. 1820.

ASSAM TEA. *The'a Assame'nsis*.

ASSO'NIA. (After the Spanish botanist, Ignatius de Asso. Nat. ord., *Byttneriads* [Byttneriaceæ]. Linn., 16-Monadelphia 7-Decandria.)

Stove trees. Cuttings in sand, in heat, under a glass; sandy loam. Summer temp., 60° to 75°; winter, 50° to 60°.

- A. populinea* (poplar-leaved). 10. White. Bourbon. 1820.
 — *viburnoides* (viburnum-like). 11. White. Bourbon. 1822.

ASTA'RTEA. (A classical name, after *Astarte*, a goddess of the Assyrians and Sidonians, called in Scripture *Ashtaroth*. Nat. ord., *Myrtleblossoms* [Myrtaceæ]. Linn., 18-Polyadelphia 2-Polyandria.)

A greenhouse shrub. Cuttings of small shoots, half-ripe, in sandy soil, under a bell-glass, and kept shaded for a time; sandy loam and peat. Summer temp., 55° to 65°; winter, 35° to 45°.

A. fasciculata (bundle-flowered). 3. N. Holland.

ASTE'LMA. (From *a*, not, and *stelma*, a crown; in reference to the construction of the fruit. Nat. ord., *Composites* [Asteraceæ]. Linn., 19-Syngenesia 2-Superflua.)

Allied to *Helichrysum*. Greenhouse evergreen shrubs; all natives of the Cape of Good Hope. Seeds sown in a gentle heat; cuttings in sand, under a bell or hand-glass; sandy, lumpy peat, well-drained. Summer temp., 50° to 65°; winter, 40° to 46°.

A. canescens (hoary). 2. Purple. June. 1794.
 — *eximium* (fine). 3. Crimson. July. 1793.

— *fragrans* (fragrant). 2. Pink. July. 1803.
 — *imbricata* (umblicated). 2. White. August. 1820.

— *milliflorum* (thousand-flowered). 1. Pale purple. July. 1802.

— *retortum* (twisted-back). 1. White. July. 1732.

— *speciosissimum* (showiest). 8. White. August. 1691.

— *spirale* (spiral-leaved). 2. White. September. 1801.

— *Stæhelinæ* (*Stæhelinæ*-like). 2. White. 1801.

— *variegatum* (variegated). 2. Brown, white. June. 1801.

ASTE'PHANUS. (From *a*, without, and *stephanos*, a crown; in reference to the stamens. Nat. ord., *Asclepiads* [Asclepiadaceæ]. Linn., 5-Pentandria 2-Di gynia.)

Greenhouse twining evergreen plants; division and cuttings; peat and sandy loam. Winter temp., 40° to 45°.

A. linearis (linear). 4. White. July. Cape of Good Hope. 1816.

— *triflorus* (three-flowered). 4. White. July. Cape of Good Hope. 1816.

ASTER. Starwort. (From *aster*, a star. The flowers of *Composites*, or *Starworts*, are called *florets*, and, being collected together on a receptacle, as in the daisy or dahlia, the rays of their circumference resemble stars. Nat. ord., *Composites* [Asteraceæ]. Linn., 19-Syngenesia 2-Superflua.)

To this family we are indebted for many of our autumn ornaments in our flower-borders. The greenhouse species are evergreen shrubs, propagated by cuttings, under a hand-glass, in sandy peat, and flourishing in peat and loam. The hardy species are deciduous herbaceous plants, propagated by division, and flourishing in common garden-soil.

HARDY.

A. abbreviatus (shortened). 2. Blue. August. N. Amer.

A. a'cris (acrid). 2. Blue. August. South of Europe. 1731.
 — *acuminatus* (long-pointed). 2. Pale red. September. N. Amer. 1806.
 — *adulterinus* (false). 3. Violet. September. N. Amer.
 — *astivus* (summer). 2. Blue. July. N. Amer. 1776. Labrador Starwort.
 — *albus* (white). 3. White. August. N. Amer.
 — *alpinus* (alpine). 1. Purple. June. Europe. 1658.
 — — *flore-albo* (white-flowered). 1. White. July. Europe. 1828.
 — — *ramosus* (small-branchy). 1. Blue. June. Europe.
 — *Altaicus* (Altaic). 1. Blue. June. Siberia. 1804.
 — *Alwartensis* (Alwart). 1. Red. May. Caucasus. 1807.
 — *amellus* (amellus). 2. Purple. August. Italy. 1596. Italian Starwort.
 — — *angustifolius* (narrow-leaved). 2. Pale blue. August. South of Europe. 1596.
 — *amelloides* (amellus-like). 1½. Violet. July. Podolia. 1824.
 — *amplexicaulis* (stem-clasping). 3. Blue. October. N. Amer.
 — *amygdalinus* (almond-leaved). 2. White. August. N. Amer. 1759.
 — *argenteus* (silver-leaved). 1. Purple. August. N. Amer. 1801.
 — *artemisiiflorus* (wormwood-flowered). 3. White. September. N. Amer.
 — *bellidiflorus* (daisy-flowered). 3. Pale red. September. N. Amer.
 — *Bessarabicus* (Bessarabian). Purple. September. Russia. 1834.
 — *bisfolus* (two-flowered). 1. Violet. August. Caucasus. 1820.
 — *blaudus* (charming). 2. Pale blue. October. N. Amer. 1800.
 — *bicolor* (two-coloured). 3. White, yellow. August. N. Amer. 1759.
 — *Cabulicus* (Cabul). 3. Pink. August. Cabul. 1842.
 — *cane-scens* (hoary). 2. Violet. September. N. Amer. 1812. Hardy biennial.
 — *canus* (hoary-leaved). 2. Purple. August. Hungary. 1816.
 — *Cassiana'bicus* (Arabian cassia). 2. Pink. September. Russia. 1834.
 — *Caucasicus* (Caucasian). 1. Purple. July. Caucasus. 1804.
 — *ciliatus* (fringed). 3. White. September. N. Amer.
 — *concinus* (neat). 2. Purple. October. N. Amer. 1800.
 — *co'ncolor* (one-coloured). 1. Purple. October. N. Amer. 1759.
 — *conyzoides* (conyza-like). 1. White. September. N. Amer. 1778.
 — *cordifolius* (heart-leaved). 2. Blue. July. N. Amer. 1759.
 — *coridifolius* (coris-leaved). 1. Pale blue. October. N. Amer.
 — *cornifolius* (cornus-leaved). 3. White. October. N. Amer.
 — *corymbosus* (corymbed). 2. White. October. N. Amer. 1765.
 — *cyaneus* (bright blue). 3. Blue. September. N. Amer. 1789.
 — *deserto'rum* (desert). 2. Blue. July. Siberia. 1820.
 — *diffusus* (diffuse). 2. White. October. N. Amer. 1777.
 — *divaricatus* (straggling). 2. White. September. N. Amer. 1800.

A. dracunculoides (tarragon-like). 3. White. November. Tauria. 1811.
 — *dumosus* (bushy). 3. White. October. N. Amer. 1734.
 — *e'legans* (elegant). 2. Blue. September. 1790.
 — *e'minens* (eminent). 2. Light. October. N. Amer.
 — — *virginus* (pure-white-rayed). 3. Whitish-yellow. September. United States.
 — *ericoi'des* (heath-like). 3. White. September. N. Amer. 1758.
 — *f'irmus* (firm). 6. Red. August. N. Amer. 1816.
 — *floribundus* (many-flowered). 4. Purple. September. N. Amer.
 — *foliolosus* (small-leaved). 3. Purple, blue. October. N. Amer. 1732.
 — *foliosus* (leafy). 3. White. September. N. Amer. 1799.
 — *fragilis* (brittle). 2. Flesh. September. N. Amer. 1800.
 — *gracilis* (slender). 1. Green. August. N. Amer.
 — *graminifolius* (grass-leaved). 2. Pale purple. October.
 — *grandiflorus* (great-flowered. Catesby's Starwort). 2. Blue. November. N. Amer. 1720.
 — *graveolens* (strong-smelling). 2. Arkansas. 1826.
 — *heterophyllus* (various-leaved). 3. White. August. N. Amer. 1811.
 — *hi'spidus* (bristly-stalked). 1. White. September. China. 1804.
 — *humilis* (humble). 1. White. September. N. Amer. 1699.
 — *hyssopifolius* (hyssop-leaved). 2. Pale purple. September. N. Amer. 1683.
 — *Ibericus* (Iberian). 2. Purple. August. Iberia.
 — *inci'sus* (cut-leaved). 2. Blue. August. Siberia. 1818.
 — *inuloides* (inula-like). 1. Red. August. Nepaul.
 — *ju'nceus* (rush-like). 4. Flesh. September. N. Amer. 1758.
 — *lavigat'us* (smooth-stemmed). 3. Flesh. September. N. Amer. 1794.
 — *la'vis* (smooth). 2. Blue. September. N. Amer. 1758.
 — *lanceolatus* (spear-headed). 4. White. September. N. Amer. 1811.
 — *la'rus* (supple-stalked). 2. White. October. N. Amer.
 — *laxiflorus* (loose-flowered). 4. September. N. Amer.
 — *linarifolius* (savory-leaved). 1. Pale blue. September. N. Amer. 1699.
 — *linifolius* (flax-leaved). 2. White. July. N. Amer. 1739.
 — *longifolius* (long-leaved). 3. White. October. N. Amer. 1793.
 — *Lusitanicus* (Spanish). 1. Blue. June. Spain. 1826.
 — *luxurians* (luxuriant). 5. Blue. September. N. Amer. 1816.
 — *macrophyllus* (large-leaved). 2. White. August. N. Amer. 1739.
 — *marginaltus* (bordered). 1. Violet. July. New Granada. 1827.
 — *montanus* (mountain). 1. August. Carolina.
 — *multiflorus* (many-flowered). 3. White. September. N. Amer. 1732.
 — *mutabilis* (changeable). 2. Purple. September. N. Amer. 1719.

- A. myrtifolius* (myrtle-leaved). 2. White. August. 1812.
— nemoralis (grove). 1. Lilac. August. N. Amer. 1778.
— Noë Angliæ (New England). 6. Purple. September. N. Amer. 1710.
— — ruber (red-flowered). 6. Red. July. N. Amer. 1812.
— Noë Belgii (New York). 4. Purple, blue. September. N. Amer. 1710.
— nudiflorus (naked-flowered). 1. Purple. August. N. Amer.
— oblongifolius (oblong-leaved). 2. Lilac. July. N. Amer. 1797.
— pallens (pale-flowered). 3. Violet. September. N. Amer.
— paludosus (marshy). 3. Blue. August. N. Amer. 1784.
— paniculatus (panicked). 4. Blue. September. N. Amer. 1640.
— Pannonicus (Hungarian). 2. Violet. July. Hungary. 1815.
— patens (spreading-haired). 2. Purple. October. N. Amer. 1773.
— pauciflorus (few-flowered). 1. White. September. Missouri.
— pendulus (down-hanging). 2. White. September. N. Amer. 1758.
— peregrinus (foreign). 1. Blue. July. N. Amer.
— phlogifolius (phlox-leaved). 2. Violet. September. N. Amer. 1797.
— pilosus (downy). 2. Pale blue. September. N. Amer. 1812.
— plantaginifolius (plantain-leaved). 1. White. August. N. Amer.
— polyphyllus (many-leaved). 3. White. September. N. Amer.
— præditus (very tall). 6. Vermilion. September. N. Amer. 1800.
— præcox (early-flowering). 2. Violet. July. N. Amer. 1800.
— prenanthoides (prenanthes-like). 3. Blue. September. N. Amer. 1821.
— pulchellus (pretty). 1. Purple. June. Armenia.
— pulcherrimus (prettiest). 2. Blue. September. N. Amer. 1800.
— punctatus (dotted). 3. Violet. August. Hungary. 1815.
— puniceus (red-stalked). 8. Blue. September. N. Amer. 1710.
— — demissus (dwarf). 2. Blue. September. Gardens. 1820.
— Pyrenæus (Pyrenean). 2. Violet. July. Pyrenees.
— radula (rasp-leaved). 2. White. October. N. Amer. 1785.
— ramosus (small-branchy). 1. Purple, red. June. N. Amer. 1816.
— recurvatus (bent-back). 3. Pale blue. August. N. Amer. 1800.
— reticulatus (netted-leaved). 3. White. July. N. Amer. 1812.
— rigidulus (stiffish). 3. Blue. September. N. Amer. 1816.
— rigidus (stiff-leaved). 1. Purple. September. N. Amer. 1759.
— rioularis (river-side). 3. White. August. N. Amer. 1820.
— rubricaulis (red-stemmed). 4. Purple. September. N. Amer. 1815.
— sagittæfolius (arrow-leaved). 2. Flesh. June. N. Amer. 1760.
— salicifolius (willow-leaved). 6. Flesh. September. N. Amer. 1760.

- A. salignus* (sallow-leaved). 6. White. September. Germany. 1815.
— sanguineus (bloody). 3. Blue. September. N. Amer.
— Schreberi (Schreber's). 4. White. August. N. Amer.
— serotinus (late-flowering. Michaelmas-daisy). 3. Blue. August. N. Amer.
— sessiliflorus (stalkless-flowered). 5. Red. October. N. Amer. 1700.
— Sibiricus (Siberian). 2. Blue. August. Siberia. 1768.
— Sikkimensis (Sikkim). 3. Bluish-purple. October. Sikkim, Himalaya. 1850.
— simplex (single-stemmed). 3. Whitish-purple. September. N. Amer.
— solidaginoides (solidago-like). 2. White. August. N. Amer. 1699.
— sparsiflorus (scattered-flowered). 3. Pale purple. October. N. Amer. 1758.
— spectabilis (showy). 2. Blue. August. N. Amer. 1777.
— spurius (spurious). 4. Blue. September. N. Amer. 1789.
— squarrosus (squarrose). 2. Blue. June. N. Amer. 1801.
— stellatus (small-star-like). 2. Violet. June. Van Diemen's Land. 1823.
— strictus (straight). 1. Violet. October. N. Amer. 1806.
— subulatus (awl-shaped). 2. Pale blue. September. N. Amer.
— surculosus (spriggy). 2. Purple. August. N. Amer.
— tardiflorus (late-flowered). 2. Blue. September. N. Amer. 1775.
— Tartaricus (Tartarian). 1. White. August. Tartary. 1818.
— tenuifolius (slender-leaved). 3. White. August. N. Amer. 1723.
— tomentosus (woolly). 2. Pink. July. N. S. Wales. 1725.
— tortifolius (twisted-leaved). 1. Purple. September. N. Amer.
— Tradescanti (Tradescant's). 3. White. August. N. Amer. 1633.
— trinervis (three-nerved). 2. White. August. Nepal. 1818.
— Tripodium (Tripoly-Sea starwort). 2. Blue. August. Britain.
— undulatus (wave-leaved). 3. Purple. September. N. Amer. 1699.
— versicolor (various-coloured). 3. White, purple. August. N. Amer. 1790.
— vimineus (twiggy). 3. Blue. September. N. Amer. 1800.

GREENHOUSE.

- A. aculeatus* (prickly-leaved). 2. White. June. N. Holland. 1818.
— angustifolius (narrow-leaved). 6. Pale blue. July. Cape of Good Hope. 1804.
— argophyllus (silvery-leaved). 10. White. July. Van Diemen's Land. 1804.
— Carolinæus (Carolina). 8. Purple. September. Carolina.
— cymbalaria (ivy-leaved). 2. White. September. Cape of Good Hope. 1786.
— erubescens (blushing). 3. Red. June. N. Holland.
— exasperatus (roughened). 3. White. May. Cape of Good Hope. 1823.
— filifolius (thread-leaved). 3. White. May. Cape of Good Hope. 1812.
— fruticulosus (rather shrubby). 1. Blue. May. Cape of Good Hope. 1759.

- A. lira tus* (rigid-stemmed). 3. White. June. N. S. Wales. 1812.
 — *myrsinoides* (myrsine-like). 3. Pale purple. May. N. Holland. 1825.
 — *obtusatus* (blunt-leaved). 4. White. June. Cape of Good Hope. 1793.
 — *pluriflorus* (many-flowered). 2. White. June. Cape of Good Hope. 1759.
 — *reflexus* (bent-back-leaved). 3. Crimson. July. Cape of Good Hope. 1759.
 — *sericeus* (silky-leaved). 3. Blue. August. Cape of Good Hope. 1786.
 — *tenuellus* (delicate). 1. Blue. August. Cape of Good Hope. 1769. Greenhouse biennial.
 — *villosus* (long-haired). 4. White. May. Cape of Good Hope. 1812.

ASTERACA'NTHA. (From *aster*, a star, and *acantha*, a spine; referring to the disposition of the spines. Nat. ord., *Acanthads* [Acanthaceæ]. Linn., 14-*Didynamia* 2-*Angiospermia*. Allied to Barleria.)

Greenhouse herbaceous perennial. Division and seeds; sandy loam. Winter temp., 38° to 45°.

- A. longifolia* (long-leaved). 2. Yellow. July. Egypt. 1781.

ASTEROCE'PHALUS. (From *aster*, a star, and *kephale*, a head; in reference to the seed. Nat. ord., *Teazleworths* [Dipsacaceæ]. Linn., 4-*Tetrandria* 1-*Monogynia*.)

It seems useless to divide the species from Scabious. Annuals, from seed; perennials, from seed, or cuttings, under a hand-glass; common soil. All hardy, except where otherwise specified.

ANNUALS.

- A. atropurpureus* (dark purple). Brown. July. E. Ind. 1629.
 — *albus* (white). White. July. E. Ind. 1629.
 — *carneus* (flesh-coloured). 3. Flesh. July. E. Ind. 1629.
 — *proliferus* (proliferous). 3. Purple. July. E. Ind. 1629.
 — *roseus* (rose-coloured). 3. Red. July. E. Ind. 1629.
 — *variegatus* (variegated). 3. Variegated. July. E. Ind. 1629.
 — *Biebersteinii* (Bieberstein's). 1½. Pink. July. Iberia. 1823.
 — *grandiflorus* (great-flowered). 3. White. July. Barbary. 1804.
 — *Legionensis* (Leon). 1½. Pink. July. Spain. 1820.
 — *maritimus* (sea). 2. Purple. July. Italy. 1683.
 — *neglectus* (neglected). 1½. Red. June. Germany. 1825.
 — *Palastinus* (Palestine). 1. Citron. July. Palestine. 1771.
 — *pectinatus* (comb-leaved). 1½. Violet. July. Arabia. 1824.
 — *proliferus* (many-suckered). 1. Yellow. July. Egypt. 1683.
 — *rotatus* (wheel-shaped). 1½. Pink. July. Iberia. 1823.
 — *saxatilis* (rock). 1½. Pink. July. Spain. 1827.
 — *Siculius* (Sicilian). 1. Pink. July. Sicily. 1783.
 — *simplex* (simple). 2. White. July. South of Europe. 1820.
 — *stellatus* (starry). 1½. Blue. July. Spain. 1596.

PERENNIALS.

- A. Africanus* (African). 6. White. August. Africa. 1690. Greenhouse evergreen shrub.
 — *agrestis* (field). Purple. August. Hungary. 1818.
 — *altissimus* (very tall). 5. Blue. August. Africa. 1819. Greenhouse evergreen shrub.
 — *amatus* (pleasant). Purple. June. 1820.
 — *argenteus* (silvery). White. August. Levant. 1713.
 — *Bannaticus* (Bannatic). 3. Pink. July. Hungary. 1802.
 — *albus* (white-flowered). 3. White. July. Gardens.
 — *cane-scens* (hoary). 1. Lilac. July. Hungary. 1802.
 — *capillatus* (long-haired). 2. Violet. July. 1820.
 — *Caucasicus* (Caucasian). 1. Blue. June. Caucasus. 1803.
 — *ceratophyllus* (buckthorn-leaved). 2. Red. July. Italy. 1826.
 — *columbarius* (pigeon-coloured). 1. Purple. July. Britain.
 — *commutatus* (changed). 1. Blue. July. Siberia. 1826.
 — *crenatus* (scalloped). 2. Flesh. August. Italy. 1825.
 — *Creteus* (Cretan). 1. Purple. June. Crete. 1596. Greenhouse evergreen shrub.
 — *elegans* (elegant). 1. Light blue. June. South of Europe. 1813.
 — *graminifolius* (grass-leaved). 1. Blue. July. Switzerland. 1683.
 — *Gramuntius* (Gramont). 1. Light blue. July. South of Europe. 1596.
 — *holosericeus* (all-silky). 1. Blue. July. Pyrenees. 1818.
 — *incanus* (hoary). 1. Red. July. Europe. 1826.
 — *intermedius* (intermediate). 1½. Blue. July. South of Europe. 1824.
 — *Isctensis* (Isctsk). 1. White. July. Siberia. 1801.
 — *lucidus* (shining). 2. Blue. Dauphiny. 1800.
 — *luteus* (yellow). 2. Yellow. June. Russia. 1820.
 — *lyratus* (lyrate-leaved). 1. Purple. July. Turkey. 1799. Greenhouse herbaceous perennial.
 — *micranthus* (small-flowered). 1. Pink. July. Armenia. 1825.
 — *mollissimus* (softest). 2. White. June. Italy. 1820.
 — *nitens* (glittering). June. Azores. 1779.
 — *ochroleucus* (yellowish-white). 1. Yellow. July. Germany. 1517.
 — *paucisetus* (few-bristled). Straw. July. South of Europe. 1827.
 — *Pyrenæicus* (Pyrenean). 1. Purple. July. South of France. 1819.
 — *rupestris* (hill). 1. Pink. July. Caucasus. 1824.
 — *rutefolius* (rue-leaved). 1. Scarlet. July. Sicily. 1804.
 — *Scopolii* (Scopoli's). 2. Straw. July. South Europe. 1819.
 — *setiferus* (bristle-bearing). 2. White. July. France. 1826.
 — *silenifolius* (silene-leaved). 1½. Red. July. Hungary. 1826.
 — *tomentosus* (woolly). 1½. Blue. July. Spain. 1827.
 — *Ucrainicus* (Ukraine). 1. Light yellow. July. Ukraine. 1795.
 — *urceolatus* (jagged). 3. Yellow. July. Barbary. 1804.
 — *Webbianus* (Webb's). ½. White. July. Mount Ida. 1818.

ASTR'LBE. (From *a*, not, and *stilbe*, brightness; flowers not very striking. Nat. ord., *Saxifragæ* [*Saxifragaceæ*]. Linn., 10-*Decandria* 2-*Digynia*.)

Hardy herbaceous perennial. Divisions; peat and a few pebbles.

A. decandra (ten-stamened). 2. White. June. Carolina. 1812.

ASTRA'GALUS. Milk Vetch. (An ancient Greek name for some leguminous plant. Nat. ord., *Leguminosæ* [*Fabaceæ*]. Linn., 17-*Diadelphia* 4-*Decandria*.)

All hardy, except where otherwise specified. Annual species, seed, in common, sandy soil, in March. Perennial herbaceous species, division of the plant. The under-shrubs, cuttings, under a hand-light common, sandy soil for all.

ANNUALS.

- A. agi'ceras* (goat's-horn-podded). 1. Pale yellow. July. 1818.
- *alope'cias* (sea-fox). 3. Yellow. June. Siberia. 1800.
- *annula'ris* (ring-formed). 1½. Purple. July. Egypt. 1800. Trailer.
- *Bæ'ticus* (Bætic). 1. Pale yellow. July. South of Europe. 1759. Trailer.
- *brachy'ceras* (short-horned-podded). ½. Yellow. July. Tauria. 1828.
- *bu'ceras* (ox-horn-podded). 1. Pale yellow. July. 1818. Trailer.
- *canalicula'tus* (channel-podded). 2. White. July. 1816.
- *caruoc'd'rpus* (nut-podded). 1. Purple. July. Spain. 1800. Biennial.
- *c'cer* (vetch). 2. Yellow. July. Europe. 1570. Trailer.
- *contortupl'catus* (twisted-plaited). 1. Pale yellow. July. Siberia. 1764. Trailer.
- *crucia'tus* (cross-formed). 1½. Violet. July. 1820. Trailer.
- *cymbæca'rpus* (boat-podded). ½. White. July. Spain. 1800. Trailer.
- *gl'au'us* (milkwort). ½. Purple. July. Spain. 1596.
- *lotoi'des* (lotus-like). ½. Red. August. China. 1763.
- *Mareo'ticus* (Mareotic). ½. Lilac. July. Egypt. 1817. Trailer.
- *Nuttallia'nus* (Nuttall's). ½. Blue. July. America. 1820. Trailer.
- *origlo'ttis* (sharp-tongue-leaved). ½. Blue. July. Tauria. 1817. Trailer.
- *pentaglo'ttis* (five-tongued). ½. Purple. July. Spain. 1739. Trailer.
- *reticula'ris* (netted). Blue. July. Iberia. 1828.
- *scorpiol'des* (scorpion-like-podded). 1. Pale blue. July. Spain. 1816.
- *sesa'meus* (sesame-like). 1. Pale blue. July. South of Europe. 1816. Trailer.
- *triangula'ris* (three-angled). 1. Pale yellow. July. 1818.
- *tribulol'des* (tribulus-like). ½. Purple. July. Egypt. 1817. Trailer.
- *trime'stris* (three-monthly). ½. Pale yellow. July. Egypt. 1730. Trailer.
- *trimo'rrhus* (three-formed). ½. Purple. July. South of Europe. 1816. Trailer.

PERENNIALS.

- A. acutifo'l'ius* (pointed-leaved). ½. July. Switzerland. 1826.
- *adu'rgens* (arising). ½. Purple. July. Siberia. 1820.

- A. adu'rgens prostra'tus* (prostrate). ½. Purple. July. Siberia. 1818. Trailer.
- *adu'ncus* (hooked). 1. Purple. July. Caucasus. 1819.
- *alopecurol'des* (fox-tail-like). 2. Light yellow. July. Spain. 1737.
- *annuod'y'tes* (sand-viper). ½. White. July. Siberia. 1820. Evergreen under-shrub.
- *arena'r'ius* (sand). 1. Blue. July. Germany. 1798. Trailer.
- *arista'tus* (awned). 1. Purple. July. Pyrenees. 1791. Evergreen.
- *a'sper* (rough). 3. Pale yellow. July. Astracan. 1796.
- *Austri'acus* (Austrian). ½. Pale blue. July. Austria. 1640.
- *Baical'e'nsis* (Baical). 1. August. Yellow. Siberia. 1830.
- *Bayonne'nsis* (Bayonne). ½. Purple. July. France. 1816.
- *brachyod'rpus* (short-podded). 1½. Purple. July. Caucasus. 1820. Trailer.
- *brevifo'l'rus* (short-flowered). ½. Purple. July. Armenia. 1826. Half-hardy evergreen.
- *Buchtorm'e'nsis* (Buchtorm's). ½. Yellow. Siberia. 1818.
- *Canada'nsis* (Canadian). 1½. Pale yellow. July. N. Amer. 1732.
- *calyci'nus* (long-calyxed). August. Caucasus. 1819.
- *capri'nus* (goat-scented). 1. Pale yellow. July. Barbary. 1583.
- *capito'l'tus* (headed). 1. Pale yellow. July. Levant. 1759.
- *Carolina'nus* (Carolina). 1½. Greenish-yellow. July. N. Amer. 1732.
- *Cauca'sicus* (Caucasian). ½. White. July. Caucasus. 1824. Evergreen.
- *Chine'nsis* (Chinese). 1. Pale yellow. July. China. 1795. Greenhouse.
- *chlorosta'chys* (green-spiked). 3. Greenish-yellow. September. Nepaul. 1824.
- *Christia'nus* (Christian). 3. Pale yellow. July. Armenia. 1737. So called by Dioscorides, because a native of the birth-land of Christianity.
- *Dahu'ricus* (Dahurian). ¾. Purple. June. Dahuria. 1822.
- *dasya'nthus* (hairy-flowered). 1. June. Hungary. 1819.
- *dasyglo'ttis* (thick-tongue-leaved). ½. Purple. July. Siberia. 1818.
- *depre'ssus* (depressed). ½. Pale yellow. July. Europe. 1772. Trailer.
- *diffu'sus* (wide-scattered). ½. Pale yellow. July. Caspian. 1820.
- *Donia'nus* (Don's). ½. Purple. July. Nepaul. 1818. Trailer.
- *emargina'tus* (nicked-leaf). 1. Pale yellow. July. South of Europe. 1825.
- *epiglo'ttis* (heart-podded). ½. Pale yellow. July. South of Europe. 1737. Trailer.
- *exsca'pus* (scapeless). ½. Yellow. July. Hungary. 1827.
- *falcu'tus* (sickle-podded; hairy-podded). 3. Greenish-yellow. July. Siberia.
- *falcifo'r'mis* (sickle-shaped). 1½. Pale yellow. July. Algiers. 1816.
- *frutico'sus* (shrubby). 1½. Violet. July. Siberia. 1804.
- *galagi'fo'r'mis* (goat's-rue-leaved). 2. Yellowish-green. June. Siberia. 1729.
- *glyciphyllo'des* (glyciphyllus-like. Liquorice milk-vetch). 1. Pale yellow. July. Siberia. 1818. Trailer.

- A. gigyphyllus* (sweet-leaved). 3. Yellowish-green. July. Britain. Trailer.
 — *gracilis* (slender). 3. Purple. June. N. Amer. 1821.
 — *halicacabus* (kettle-calyxed). 3. Pale yellow. May. Armenia. 1806.
 — *hamosus* (hook-podded). 1. Pale yellow. July. Spain. 1683. Trailer.
 — — *macrocarpus* (large-fruited). 3. Pale yellow. June. South of Europe. 1820. Trailer.
 — *hypoglottis* (tongue-under-tongue). 3. Purple. July. Britain. Trailer.
 — — *albus* (white-flowered). 3. White. June. Gardens. Trailer.
 — *hymenocarpus* (membranous-podded). 4. Yellow. July. Russia. 1835.
 — *incanus* (hoary). 3. Purple. July. Montpellier. 1759.
 — *inflatus* (swollen). 1. Purple. July. Mendoza. 1827.
 — *lactiflorus* (milk-flowered). Striped. June. Siberia. 1832.
 — *lanigerus* (wool-bearing). 3. Yellow. June. Egypt. 1791.
 — *Laxmanni* (Laxmann's). 1. Purple. August. Siberia. 1814. Trailer.
 — *leontinus* (lion-tail). 3. Blue. July. Austria. 1815. Trailer.
 — *leptophyllus* (fine-leaved). 3. White. July. Barbary. 1811.
 — *leucophæus* (dusky). 3. Whitish-yellow. July. 1776. Trailer.
 — *linearifolius* (linear-leaved). 1. Purple. July. Siberia. 1780.
 — *longiflorus* (long-flowered). 3. Yellow. July. Tartary. 1806.
 — *macrocephalus* (large-headed). 4. Yellow. June. Caucasus. 1831. Trailer.
 — *maximus* (greatest-for-tail). 3. Yellow. June. America.
 — *melilotoides* (melilot-like). 3. Purple. June. Siberia. 1785.
 — *micranthus* (small-flowered). 1. Pale yellow. July. 1800.
 — *microphyllus* (small-leaved). 1. Yellow. June. Siberia. 1773.
 — *Monspessulanus* (Montpelier). 1. Purple. July. France. 1710. Evergreen trailer.
 — — *albus* (white). 1. White. July. South of Europe. Evergreen trailer.
 — *Narbonensis* (Narbonne). 3. Pale yellow. July. South of Europe. 1789.
 — *neglectus* (neglected). 3. July. Siberia. 1826.
 — *odoratus* (sweet-scented). 2. Pale yellow. July. South of Europe. 1820.
 — *onobrychioides* (saintfoin-like). 1. Purple. July. Iberia. 1819.
 — *onobrychis* (purple-spiked). 13. Purple. July. Austria. 1640. Trailer.
 — *otopterus* (ear-winged). 1. Pale blue. July. Altai. 1817.
 — *Pallasii* (Pallas's). 3. Purple. July. Caspian. 1818.
 — *palleseus* (palish). 1. Pale yellow. June. Siberia.
 — *physodes* (inflated). 3. Purple. July. Siberia. 1759.
 — *platyphyllus* (broad-leaved). 1. Pale yellow. July. Siberia. 1824. Trailer.
 — *Ponticus* (Pontic). 2. Pale yellow. Tauria. 1820.
 — *poterium* (poterium). 3. White. July. Levant. 1640. Evergreen.
 — *procumbens* (lying-down). 13. Yellowish-blue. May. Chili. 1832. Half-hardy.

- A. purpureus* (purple). 3. Purple. July. South of France. 1820. Trailer.
 — *reptans* (creeping). 3. White. July. Mexico. 1818. Greenhouse evergreen creeper.
 — *Schanginianus* (Schang's). 1. White. Siberia. 1832.
 — *semitolocularis* (half-two-celled). 13. Pale yellow. July. Siberia. 1804.
 — *stellata* (star-podded). 3. Blue. July. South of Europe. 1658. Trailer.
 — *stipulatus* (large-stipuled). 1. Yellow. June. Nepaul. 1822.
 — *subulatus* (awl-shaped). 3. Purple. July. Siberia. 1820.
 — *succulentus* (succulent). 1. Purple. July. N. Amer. 1827.
 — *sulcatus* (furrowed). 4. Light blue. July. Siberia. 1785.
 — *syvicolus* (wood). America. 1831. Trailer.
 — *Tauricus* (Taurian). 3. Purple. July. Tauria. 1826.
 — *testiculatus* (egg-shaped). 3. Fleshy-white. July. Tauria. 1818.
 — *tomentosus* (woolly-leaved). 3. Pale yellow. July. Egypt. 1800. Half-hardy.
 — *tragacantha* (great-goat's-thorn). Pale yellow. July. South of Europe. 1640. Evergreen.
 — *tu midus* (swelling). 3. Pale yellow. July. Egypt. 1816. Evergreen.
 — *uliginosus* (marsh). 2. Pale yellow. July. Siberia. 1752.
 — *utriger* (bladder-bearing). 3. Yellow. July. Russia. 1818.
 — *vesicularis* (bladder-calyxed). 1. Whitish-yellow. July. Europe. 1737. Trailer.
 — *vimineus* (rod-like). 3. Purple. July. Siberia. 1816.
 — *virgatus* (twiggy). 3. Violet. July. Siberia. 1806.
 — *vulpinus* (fox). 2. Light yellow. July. Caucasus. 1815.

ASTRANTHUS. (From *astron*, a star, and *anthos*, a flower; in reference to the star-like divisions of the flower. Nat. ord., *Homaliads* [*Homaliaceæ*]. Linn., 8-*Octandria* 1-*Monogynia*.)

Greenhouse evergreen shrub; cuttings in sandy soil, under a glass; rich, light loam. Temp., 50° in summer; winter, 40° to 45°.

A. Cochinchinensis (Cochin-Chinese). 4. White. July. China. 1823.

ASTRANTIA. Masterwort. (From *astron*, a star, and *anti*, comparison; referring to the disposition of the flower-umbels. Nat. ord., *Umbellifers* [*Apiaceæ*]. Linn., 5-*Pentandria* 2-*Digynia*.)

Allied to *Sanicula*. Hardy herbaceous perennials; dividing the plant in March, April, or October; sandy loam.

A. Biebersteinii (Bieberstein's). 2. May. Caucasus. 1835.

— *Carniolica* (Carnioline). 1. Striped. June. Carniola. 1812.

— *Caucasica* (Caucasian). 3. Pink. July. Caucasus. 1818.

— *major* (greater). 2. Striped. June. Alps, Europe. 1596.

— *maxima* (greatest). 2. Pink. July. Caucasus. 1804.

- A. minor* (smaller). $\frac{1}{2}$. Pink. June. Switzerland. 1686.
 — *pauciflora* (few-flowered). $\frac{1}{2}$. White. July. Sicily. 1820.

ASTRAPE'A. (From *astrape*, lightning; in reference to the brightness of the flowers in India. Nat. ord., *Byttneriads* [*Byttneriaceæ*]. Linn., 6-*Monadelphia* 7-*Dodecandria*.)

Formerly arranged erroneously with *Sterculiads*. Stove evergreen trees; cuttings of young wood in April, in sand, under a bell-glass, in heat; loam and peat. Summer temp., 65° to 80°; winter, 55° to 65°.

- A. tiliaefolia* (lime-tree-leaved). 20. Isle of Bourbon. 1824.
 — *viscosa* (clammy). 30. Pink. Madagascar. 1823.
 — *Wallichii* (Wallich's). 20. Pink. July. Madagascar. 1820.

ASTROCA'RYUM. (From *astron*, a star, and *karyon*, a nut; referring to the disposition of the fruit. Nat. ord., *Palms* [*Palmaceæ*]. Linn., 21-*Monæcia* 6-*Hexandria*.)

Allied to *Cocos*. Stove palms; seed in hotbed, in spring; rich loam. Summer temp., 65° to 75°; winter, 55° to 60°.

- A. acule* (stemless). 10. Brazil. 1820.
 — *aculeatum* (prickly). 40. Guiana. 1824.
 — *cumpestra* (field). 10. Brazil. 1826.
 — *Murumuru* (*Murumuru*). 40. Brazil. 1825.
 — *rostratum* (beak-sheathed). 10. White. Bahia.
 — *utag're* (common). 30. Brazil. 1825.

ASTROLO'BIVM. United to *Ornithopus*.

ASTROLO'MA. (From *astron*, a star, and *loma*, a fringe; in reference to the bearded fringe on the flowers. Nat. ord., *Epacrids* [*Epacridaceæ*]. Linn., 5-*Pentandria* 1-*Monogynia*.)

Greenhouse evergreen shrubs. Young cuttings, firm at their base, in sand, under a bell-glass; sandy loam and turfy peat. Winter temp., 40° to 48°.

- A. denticulatum* (finely-toothed). 1. Pale red. N. Holland. 1826.
 — *humifusum* (trailing). 1. Scarlet. July. N. S. Wales. 1807.

ASTY'RIA. (From *a*, not, and *steiras*, sterile; referring to the absence of barren stamens, one-half of these being barren, generally, in this order. Nat. ord., *Byttneriads* [*Byttneriaceæ*]. Linn., 16-*Monadelphia* 5-*Octandria*.)

Allied to *Dombeya*. Stove evergreen shrubs; cuttings in sand, under a bell-glass, in heat; peat and sandy loam. Summer temp., 60° to 85°; winter, 55° to 60°.

- A. rosea* (rosy). Pink. May. Mauritius. 1843.

ASYSTA'SIA. (From *a*, without, and *stachys*, a spike, the inflorescence; not in spikes, as is often the case in *Acanthads*. Nat. ord., *Acanthads* [*Acanthaceæ*]. Linn., 14-*Didynamia* 2-*Anghosvermia*.)

Stove evergreen shrub; cuttings of young shoots in April, in sandy soil, under a bell-glass; peat and loam, with a little sand, and, when vigour is required, a little dried cowdung. Summer temp., 60° to 80°; winter, 50° to 55°.

- A. Coromandeliana* (Coromandel). Purple. September. India. 1845.

ATA'LAN'TIA. (A classical name, after *Atalanta*, daughter of *Schoenus*, King of *Seyrus*. "She being wearied with the importunities of her suitors, consented to have the man that could outrun her. *Hippo'menes* did so by the help of *Venus's* golden apples. He cast three before her, and she lost ground in gathering them." The fruit is golden-coloured. Nat. ord., *Citronworts* [*Aurantiacæ*]. Linn., 10-*Decandria* 1-*Monogynia*.)

Stove evergreen shrub; cuttings in heat, under a bell-glass; sandy loam and peat.

- A. monophylla* (one-leaved). 4. White. July. E. Ind. 1777.

ATAMASGO-LILY. *Zephyra'nthus Atamasco*.

ATHANA'SIA. (From *a*, not, and *thantos*, death; in reference to the flowers being what is called "everlasting." Nat. ord., *Composites* [*Asteraceæ*]. Linn., 19-*Syngenesia* 1-*Æqualis*.)

Greenhouse evergreens; all natives of the Cape of Good Hope. Cuttings of half-ripe wood in spring, in sand, under a bell-glass; loam and peat, but most of the former. Winter temp., 40° to 45°; summer, 60° and upwards.

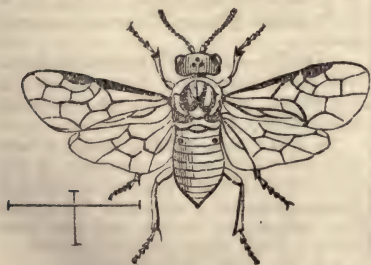
- A. canescens* (hoary). 3. Yellow. July. 1820.
 — *capitata* (headed). 1 $\frac{1}{2}$. Yellow. March. 1774.
 — *crenata* (scalloped). 2. Yellow. July. 1816.
 — *crithmifolia* (samphire-leaved). 2. Yellow. July. 1723.
 — *cuneifolia* (wedge-leaved). 2. Yellow. July. 1816.
 — *dentata* (toothed). 1 $\frac{1}{2}$. Yellow. July. 1759.
 — *filiformis* (thread-shaped). 2. Yellow. August. 1787.
 — *longifolia* (long-leaved). 2. Yellow. July. 1800.
 — *parviflora* (small-flowered). 2. Yellow. April. 1731.
 — *pectinata* (comb-leaved). 1 $\frac{1}{2}$. Yellow. July. 1774.
 — *pinnata* (pinnate). 1 $\frac{1}{2}$. Yellow. July. 1818.
 — *pubescens* (downy). 6. Yellow. July. 1768.
 — *punctata* (dotted). 3. Yellow. June. 1822.
 — *tomentosa* (woolly-leaved). 2. Yellow. May. 1774.
 — *tricuspis* (three-pointed). 3. Yellow. July. 1816.
 — *trifurcata* (three-forked-leaved). 3. Yellow. July. 1710.
 — *virgata* (twiggy). 1. Yellow. July. 1815.

ATELA'NDRA. (From *atalos*, soft, and *aner*, an anther. Nat. ord., *Labiates* or *Lipworts* [*Lamiaceæ*]. Linn., 14-*Didynamia* 1-*Gymnospermia*. Allied to *Westringia*.)

Greenhouse evergreen shrub. Cuttings of half-ripened wood in sand, under a bell-glass; loam and peat. Winter temp., 40° to 45°.

A. inca'na (mouldy-looking). Slate. Swan River.

ATHALIA SPINARUM. The Turnip Saw-fly. "The grub of this insect—known as the Black Caterpillar, Black Canker, Black Palmer, Negro, and Nigger, or Black Grub—sometimes destroys thousands of acres of our turnips. Its body is cylindrical, as thick as a crow-quill, about half an inch long, greenish-black, with a darker line down the back; then a line of dull, yellowish-grey, and a third of dark slate. Underneath, the body is paler; it is wrinkled, and the head is black. When alarmed, this grub curls itself together in a somewhat spiral form. They feed on the leaf of the turnip, leaving nothing but its largest ribs, from the middle of August until about the same period of October. They never attack the Swedish turnip. When full grown, the grubs bury themselves just below the surface of the earth, each forming a small, oval cocoon of earth, formed into a paste with a gummy moisture from its mouth. It remains in the chrysalis state until July, when the perfect insect, or Turnip Saw-fly, comes forth. Our drawing represents it magnified, the natural size being shown by the cross lines. It is the *Athalia centifolia* of some, and *A. spinarum* of other naturalists. Its colour is bright orange, head black, upper lip pale yellow, antennæ black, thorax has two large dark spots, and other dark marks are about the body and wings. On small plots of turnips the black grub may be easily removed by hand-picking, and from larger breadths by turning upon them some broods of ducks."—(*Cottage Gardener*, iii. 149.)



ATHEROPO'GON. (From *ather*, an awn, and *pogon*, a beard; in reference to its

bearded awns. Nat. ord., *Grasses* [Gramineæ]. Linn., 23-*Polygiantia* 1-*Monæcia*. Allied to *Chloris*.)

A hardy perennial grass; seeds and division; common soil.

A. aphidoi'des (aphida-like). 3. Apetal. August. South Europe. 1765.

ATHEROSPE'RMA. (From *ather*, an awn, and *sperma*, seed; seeds awned. Nat. ord., *Plum-Nutmegs* [Atherospermaceæ]. Linn., 21-*Monæcia* 8-*Icosandria*.)

This beautiful New-Holland tree attains the great height of 150 feet, and has the aspect of a stately conifer, with a girth of 6 to 7 feet. The colonists make a pleasant tea-beverage from the bark, either dried or in a green state. "Its effects are, however, slightly aperient."—*Back-house*. Greenhouse evergreen tree; cuttings; loam and peat. Winter temp., 40° to 50°.

A. moscha'ta (musk). White. June. N. Holland. 1824.

ATHRI'XIA. (From *a*, not, and *thrix*, a hair; the receptacle being destitute of hairs. Nat. ord., *Composites* [Asteraceæ]. Linn., 19-*Syngenesia* 2-*Superflua*. Allied to *Leyssera*.)

Greenhouse evergreen shrub; cuttings of rather young wood, under a bell-glass, in sandy soil; lumpy loam and peat. Winter temp., 40° to 45°.

A. Cape'nsis (Cape). 3. Red. April. Cape of Good Hope. 1821.

ATMOSPHERE. See AIR.

ATRA'GENE. (From *athros*, pressed, and *genos*, birth; in reference to the manner in which the branches clasp their supports. First applied by Theophrastus to our Traveller's Joy—*Clematis vitalba*, Nat. ord., *Crowfoots* [Ranunculaceæ]. Linn., 13-*Polyandria* 6-*Polygynia*.)

Hardy deciduous climbers; seeds when procurable; sown in a cold pit, and pricked off into other pots as soon as up; layers in summer and autumn; cuttings in spring and summer, under a hand-light; common soil.

A. America'na (American). 15. Purple. June. N. Amer. 1797.

— *obi'qua* (unequal-sided). 15. Purple. June. N. Amer. 1797.

— *Austri'aca* (Austrian). 8. Brown, yellow. July. Austria. 1792.

— *macrope'tala* (large-petaled). Russia. 1831.

— *occident'a'lis* (western). 10. July. 1818.

— *Ochote'nsis* (Ochotsk). 12. White. June. Siberia. 1818.

— *Sibi'rica* (Siberian). 12. Whitish-yellow. July. Siberia. 1753.

A'TRIPLEX. Orach, or Arach. (From *ater*, black, and *plexus*, woven together; on account of the dark colour and habit of some of the species. Nat. ord., *Chenopods* [Chenopodiaceæ]. Linn., 23-*Polygama* 1-*Monæcia*.)

A. hal'imus is a hardy evergreen shrub, rather ornamental, and *A. portulacoi'des* is a hardy under-shrub; but the species most deserving notice is

A. hortensis, Garden Orach. See ORACH. There are many other species quite undeserving the notice of the gardener.

A'TROPA. Nightshade. (Named after *Atropos*, one of the three Fates, in reference to its poisonous qualities.)

We introduce this native weed (*A'tropa bella-donna*), for the purpose of warning country people from eating its berries, fatal accidents frequently occurring in consequence. The berries are at first green, but become black and juicy.

ATTALE'A. (From *attalus*, magnificent; in reference to the beauty of these palms. Nat. ord., *Palms* [Palmaeae]. Linn., 21-Monæcia 9-Polyandria. Allied to *Cocos*.)

Stove palms. Seeds; rich, loamy soil. Summer temp., 65° to 80°; winter, 55° to 60°.

- A. co'mpta* (decked). 22. Brazil. 1820.
- *excel'sa* (tall). 70. Brazil. 1826.
- *funi'fera* (rope). 40. Brazil. 1824.
- *hu'milis* (humble). 10. Brazil. 1820.
- *Rossii* (Ross's). 20. Brazil. 1825.
- *specto'sa* (showy). 70. Brazil. 1826.
- *specta'bilis* (remarkable). 70. Brazil. 1824.

AUBRIE'TIA. (Named after *M. Aubriet*, a French botanical draughtsman. Nat. ord., *Crucifers* [Brassicaceae]. Linn., 15-Tetradynamia. Allied to *Arabis*.)

Hardy evergreen trailers. Dividing in spring or autumn; cuttings under a hand-glass, in sandy soil; any dry soil.

- A. deltoï'dea* (three-angled). 4. Purple. April. Levant. 1710.
- *hesperi'dio'ra* (hesperis-flowered). 4. Purple. March. South Europe. 1823.
- *purpu'rea* (purple). 4. Purple. April. Greece. 1820.

AU'CUBA. (The name of the shrub in Japan. Nat. ord., *Cornels* [Cornaceae]. Linn., 21-Monæcia 4-Tetrandria.)

Cuttings in spring and autumn, in any light soil, without covering; common soil, if drained; stands the smoke of towns well. It is sometimes called the *Variegated Laurel*.

- A. Japo'nica* (Japan-blotch-leaved). 6. Apetal. June. Japan. 1783.

AUDIBE'RTIA. (Named after *M. Audibert*, a noted nurseryman of Taraseon. Nat. ord., *Labiates* [Lamiaceae]. Linn., 2-Diandria 1-Monogynia. Allied to *Monarda*.)

Hardy evergreen. Seeds, in March or April; common soil.

- A. inca'na* (hoary). 14. Pale blue. August. Columbia. 1827.

AUDOUINIA. (Named after *Audouin*, a celebrated entomologist. Nat. ord., *Bruniads* [Bruniaceae]. Linn., 5-Pentandria 1-Monogynia.)

Greenhouse evergreen under-shrub. Cuttings of half-ripened wood, in sand, under a bell-glass; peat and loam. Winter temp., 45°.

- A. capita'ta* (headed). 14. Purple. June. Cape of Good Hope. 1790.

AU'LAX. (From *aulax*, a furrow; in reference to the furrowed under side of the leaves. Nat. ord., *Proteads* [Proteaceae]. Linn., 22-Diacia 4-Tetrandria.)

Greenhouse evergreen shrubs. Ripe cuttings, in sandy soil, under a bell glass; loam and peat. Winter temp., 45° to 60°.

- A. pinifo'lia* (pine-leaved). 2. Yellow. August. Cape of Good Hope. 1780.
- *umbella'ta* (umbelled). 2. Yellow. July. Cape of Good Hope. 1774.

AURI'CULA. (*Pri'mula auri'cula*.) The Bear's Ear, or Mountain Cowslip.

The varieties of this flower are very numerous, and their numbers are annually increased. They are divided into five classes. 1. *Green-edged*; 2. *Grey-edged*; 3. *White-edged*; 4. *Selfs*, or one-coloured; and, 5. *Alpines*, which have the outer edge of the petals shaded by a mixture of two colours, not separated into distinct bands of colour, as in the edged varieties; and the paste round the tube is yellow, instead of white, as it is in the edged and selfs.

"As florists have several terms relative to the Auricula, which may not be understood by every amateur, we may as well explain that the *thrum* is a collective name for the stamens in the very centre or *tube* of each flower. *Paste*, in the edged and self varieties, is the white colour next round the edge of the tube, or *eye*, of the flower: it is yellow in the Alpines. *Ground-colour* is the next colour to this on the petal, being the distinctive colour of the variety. *Edge* is the outer colour of all, forming the border of the flower. A *Pip* is the single flower, and a *Truss* is several pips, with their several footstalks springing from one stem common to them all.

"The properties of the Auricula may be divided into two series, namely, those of the single pip, and those of the single plant.

"*The Pip*.—1. Should be circular, large, with petals equal, firm, fleshy, smooth at the edges, without notch or serrature, and perfectly flat.

"2. The centre, or tube, should not exceed one-fourth of the diameter of the pip; it should be of a fine yellow or lemon colour, perfectly round, well filled with the anthers, or thrum, and the edge rising a trifle above the paste, or eye.

"3. The paste, or eye, should be perfectly circular, smooth, and of a dense, pure white, without crack or blemish,

forming a band not less than half the width of the tube, and encircling it.

"4. The ground-colour should be dense, whole, and form a perfect circle next the eye. The brighter, darker, or richer the colour, the better the flower; but, if it be paler at the edges (where they are parted into five), or have two colours or shades, it is a fatal defect.

"5. The margin, or outer edge, should be a clear, unchangeable green, grey, or white, and be about the same width as the ground-colour, which must in no part go through to the edge. From the edge of the paste to the outer edge of the flower should be as wide as from the centre of the tube to the outer edge of the paste. In other words, the proportions of the flowers may be described by drawing four circles round a given point, at equal distances; the first circle forming the tube, the second the white eye, the third the ground-colour, and the fourth the outer edge of the flower; and the nearer they approximate to this (except that the ground-colour, which may be a little broader than the other bands, and the green or grey edge, may run into each other in feathery points), the better the flower. The colours should not be liable to fly, as is the defect of Stretch's Alexander, the colours of which fade in three or four days.

"*Of the Plant.*—1. The stem should be strong, round, upright, elastic, bearing the truss upright without support, and from four to seven inches high, so as to carry the truss well, but not too high above the leaves.

"2. The length and strength of the foot-stalks of the pips should be so proportioned to the number and size of these, that all the pips may have room to show themselves, and to form a compact, semi-globular truss of flowers, not less than five, though we prefer seven in number, without lapping over each other. The pips should be all alike in colour, size, and form, so as not to be easily distinguished from one another; for, otherwise, the unity and harmony of the truss will be destroyed, and, although ever so beautifully formed, would appear as if taken from different sorts of Auricula. An Auricula ought to blow freely, and expand all its pips at the same time; for, by this means, the colours in them all will appear equally fresh and lively; whereas, in those trusses that do not

open some of the pips till others have passed their prime, the whole appearance of the truss is impaired.

"3. The truss is improved if one or more leaves grow, and stand up well behind the bloom; for it assists the truss, and adds much to the beauty of the bloom, by forming a green background.

"4. The foliage, or grass, should be healthy, well-grown, and almost cover the pot."—*Gard. and Florist*, i. 45.

"We are of opinion that all these criteria are founded upon the dictates of correct taste; but, as these excellencies are never combined in one variety, and as some, being equals in many qualities, are mutually superior in others, the question constantly arises, at Auricula exhibitions, as to which variety has the preponderance of merit. Now, we are clearly of opinion that *form*, including in this the relative proportions of the colours on the pips, the half-globular form of the truss, the number of pips, &c., is by far the most striking excellence in an Auricula. Next to this we should place the harmony, or, as we should prefer, the agreeable contrast, or complemental association of the colours.

"*Of the Pairs.*—Auriculas are usually exhibited two specimens together, or 'in pairs.' These should be of equal height and size in all their parts, leaves as well as blooms; for it is offensive to the eye to see a dwarf by the side of a tall-growing specimen. It is also desirable that the colours should differ; thus, a green-edged and a white-edged, a dark ground-colour and a light ground-colour, should go together. But we do not attach so much importance to this diversity of colour as some judges do. We think it should have no weight further than that, if two competing pairs are exactly of equal merit in other respects, the prize should be awarded to the pair of best-contrasted colours. But the slightest superiority in any characteristic of the pip or truss, we think, ought to prevail over this mere matter of taste; for the other characteristics are evidences of better cultivation."—(*The Cottage Gardener*, iii.)

Propagation is effected by taking slips from, and dividing roots of, approved varieties, after the seed has ripened, in July and August, and by the seed itself.

Raising Varieties.—The parent plants should be vigorous; and, before the pips

of the mother-plant are quite open, cut off the anthers of all of them with a pair of sharp-pointed scissors, cover with a hand-glass, dust the pistil with pollen from the father-plant, and keep the hand-glass over as before, until the flower, beginning to fade, shows that there is no danger of any other pollen being intruded to frustrate your object. Gather the seed-vessels as they become brown, in June and July; place them in the sun, on a sheet of white paper, until they burst. Rub out the seeds, and sow them early in September, or keep them in the seed-vessels, in a dry place, until March, which is better. Sow them in a warm border of light soil, or in boxes, under glass; cover them with a quarter of an inch of the same soil. Keep the seedlings free from weeds, and, when they have four or five leaves, transplant them from the boxes, or from the border, into a similar border, in rows eight inches apart each way, there to remain until they flower, which will be next spring. Those that you mark as good must be potted as soon as the bloom is over, and treated as we shall direct for established old plants.

Culture of established Plants.—We will suppose that you have bought these while blooming. Then, at the end of June, when the blooming is quite over, re-pot them, in order to have a strong growth to flower finely next season. Have your *compost* of light loam, rotten cowdung, and decayed vegetable mould, in equal parts, with a portion of sand, about one-eighth, well-mixed, and in a state neither wet nor dry, ready in such quantities as your stock of plants may require. Turn out of their pots your blooming-plants; remove nearly all suckers that have roots to them; lay them on one side, then shake off nearly all the old soil; trim the roots sparingly, and then your plant is ready for the new pot. Place a large crock, or broken piece of pot, or an oyster-shell, over the hole of each pot; put upon this a number of smaller crocks, to the depth of three quarters of an inch; then place upon them about half an inch of the fibrous part of the loam, and upon that a portion of your compost; then, with one hand hold the plant rather above the level of the rim of the pot, and with the other fill in the compost amongst the roots. Proceed thus until the pot is filled, and then gently strike

the pot upon the bench, to settle the soil, leaving hold of the plant, that it may settle with the soil. This will bring the soil level with the rim of the pot; put a little more soil around the plant, and press it gently with your fingers, so as to leave the soil a quarter of an inch below the edge of the pot at the sides, and level with it in the centre. Place them upon a bed of coal-ashes, in a situation where the sun does not shine upon them after ten o'clock in the morning. The proper sized pots for blooming-plants is the size known as 32s: they are about $5\frac{1}{2}$ inches in diameter, and of proportionate depth. The suckers may either be put singly into small pots, or three or four in pots, of the same size as those for the blooming-plants, and be treated in a similar manner. The single-pot plan is the best, if you have room to winter them. Water them all in fine weather, and look out for slugs and worms, which would injure them. Keep them free from weeds, stir the surface frequently, and shade them, throughout July, August, and September beneath a north wall, with a covering of oiled canvass, to draw down in very heavy showers. So soon as the cold nights and heavy rains of autumn come on, the plants must be removed to their winter quarters.

Wintering.—Dr. Horner, one of the most successful of Auricula cultivators, has employed, for many years, a frame made purposely for protecting this flower in winter, which he has thus depicted and described:—



“It stands on legs between two and three feet high; the top lights slide, and, as shown in the diagram, may also be propped up by means of an iron bar, perforated with holes two or three inches apart, and which catch on a nail projecting from the wood on which the light rests when down. It is permanently fixed to the sash by means of a small staple, forming a moveable joint, and, when not

used, lies along its lower edge, and is there secured. The front lights let down on hinges; the ends are also glass; and in the back, which is wood, there is a door, for the convenience of getting to the pots behind, and also for thorough ventilation. There are five rows of shelves, graduated to the slope of the glass; they have a piece, an inch wide, sawn out of the middle; there is a space also left between them; so that the bottom of the frame is quite open, for the abundant admission of air to circulate thoroughly around the sides and bottom of the pots. By letting down the front light only, the plants may be left, for days together, exposed to all the advantages of light and air, without care or notice; and when it is desirable to give them the benefit of a shower the top lights are removed."

But it is not at all necessary to incur the expense of a frame thus constructed, as a common cucumber-frame, set on bricks, or cold pit, answers equally well. In either of these set them upon a stratum of coal-ashes, two or three inches thick; or, when expense is no object, upon a stage of boards slightly raised. The plants ought to be within six inches of the glass. Careful attention is required to two points—giving air and watering: very little, if any, is required of the latter. If the weather is dry, and a good deal of sunshine occurs, a little water will be required. This should be applied in the morning, to allow the surface of the soil in the pots to become dry before night. A fine, sunny morning, therefore, should be chosen to water these plants. Of air, abundance should be given. On all fine days the lights should be drawn entirely off; but, should there be the least appearance of rain, let the frames be closed instantly, giving air then either at the back, by propping up the light, or by propping up the lights in the centre of each side, so as to allow a full current of air to the plants. Constant search must be made for slugs, woodlice, and other destructive insects, and the surface of the soil kept free from moss by frequent gentle stirring.

Spring culture.—At the close of February, top-dress the soil in the pots with a compost of very rotten cowdung, two years old, at least, and some rotten leaf-mould and light loam. If these are not dry, use means to make them so. Mix them with the hand well together, and

add a little sand; then have your plants in some convenient place, remove a portion of the old soil, clear away all decayed leaves, and apply the top-dressing of fresh compost, very nearly filling the pots; press it rather closely to the stem of each plant, give a gentle watering with a fine-rose watering-pot, to settle the new earth; replace the plants in the frame, and attend them carefully, as directed previously. This top-dressing greatly strengthens the plants, and, consequently, the blooms. Continue to give air freely, as above directed. When the trusses of flowers show themselves, which will be about the end of March, give air freely only during very fine days, and keep them rather warmer both by night and by day, giving at night a thick covering of mats, or other warm material. Water abundantly now, but *only on the soil*: do not wet the leaves. When in flower, shade them from the sun, or remove them to a cool, shady situation, but quite protected from rain by some kind of glazed shelter. This will prolong the time of the blooming. When the bloom is over, place them on coal-ashes; to keep worms out of the pots, and in a situation where the sun does not shine upon them after ten o'clock in the morning.

Diseases.—The Auricula is liable to have its roots ulcerated, or *cankered*, if the pots are not well drained. This is best done by having the pots deep, and one-fourth filled with rubbly charcoal, and the soil not too much divested of pebbles. At the blooming-time the aphid, or green-fly, sometimes attacks the plants. These can only be removed individually by means of a camel-hair pencil.

Canker.—The first symptom of the disorder having attacked an Auricula is its loss of green-colour, and its assuming a yellowish, sickly appearance. Soon after, it decays on one side, and becomes crooked, or else the main root of the plant rapidly decays quite through, and the head drops off. In fact, the juices of the plant are vitiated at the time the leaves begin to appear sickly; so that no time must be lost in cutting away entirely the cankered part, fresh potting it into proper soil, and removing it to a cool, shaded situation. This is the only likely method to recover the infected plant. Some florists have thought the disease epidemic and contagious, because, when it does appear, it usually attacks many

plants in the same collection. This, however, is no such proof, but merely evinces that the whole have been rendered liable to the disease, by being all equally mismanaged, as by having an unsuitable soil, &c.

AVE'NA. A genus of the Nat. ord., Grasses, of which it is only necessary to observe here, that one of its species, *Ave'na sati'va*, is the Oat.

A'VENS. *Ge'um*.

AVENUE is a road bordered by trees on each side; and being, as observed by Whateley, confined to one termination, and excluding every view on the sides, has, when straight, a tedious sameness throughout. To be great it must be dull; and the object to which it is appropriated is, after all, seldom shown to advantage. Buildings, in general, do not appear so large, and are not so beautiful, when looked at in front, as when they are seen from an angular situation, which commands two sides at once, and throws them both in perspective; but a winding, lateral approach is free from these objections. It may, besides, be brought up to the house without disturbing any of the views from it; but a straight avenue cuts the scenery directly in two, and reduces all the prospect to a narrow vista. A mere line of perspective, be the extent of what it may, will seldom compensate for the loss of that space which it divides, and of the parts which it conceals. These kinds of walks were formerly much more the fashion than they are at present. Where they are to be made, the common Elm answers very well for the purpose in most grounds, except such as are very wet and shallow. The rough, Dutch Elm is approved by some, because of its quick growth; and it is a tree that will not only bear removing very well, but that is green in the spring almost as soon as any plant whatever, and continues so equally long. It makes an incomparable hedge, and is preferable to all other trees for lofty espaliers. The Lime is very useful, on account of its regular growth and fine shade; and the Horse Chesnut is proper for such places as are not too much exposed to rough winds. The Spanish Chesnut does very well in a good soil, or on warm gravels, as it rises to a considerable height when planted somewhat close; but, when it stands singly, it is rather inclined to spread than grow tall.

The Beech naturally grows well with us in its wild state; but it is less to be chosen for avenues than others, because it does not bear transplanting well. The White Poplar may also be employed for this use, as it is adapted to almost any soil, and is the quickest grower of any forest-tree. It seldom fails in transplanting, and succeeds very well in wet soils, in which the others are apt to suffer. The Oak is but seldom used for avenues, because of its slow growth.

The best example we know of a noble avenue is from the Chester Lodge to Eaton Hall, in Cheshire, but it is very deceptive in its apparent length, and the hall is not seen to advantage throughout. There is an avenue of Limes leading to the Duke of Devonshire's villa, at Chiswick, near London, which has a fine effect, not being in a straight line. Another of the best-planted avenues we know is an approach to Clifden House, now the property of the Duke of Sutherland. The trees are planted on raised platforms, right and left, with an open, intervening space between them and the carriage-drive. This would have been a better arrangement for the noble avenue of Deodars, lately planted between the new conservatory and the old pagoda, in Kew Gardens. When this avenue of Deodars, and others that are now being laid out, with Araucarias, the Douglas Pine, and their allies, the Mexican, Japanese, and Chinese Cypresses, come to an age when they will assume the true characters of these noble cone-bearers, avenues will again become fashionable. In every instance possible we would recommend the trees to be planted considerably above the level of the road, on raised platforms, following any inequalities or undulations in the bed of the road. The celebrated avenue in Windsor Park would have appeared much more noble had it been thus planted.

AYERRHOA'. (Named after *Averrhoes*, a Spanish physician. Nat. ord., *Oxalids* [*Oxalidaceæ*]. Linn., 10-Decandria 4-Pentagynia.)

The leaves of *A. cara'mbola* exhibit that kind of irritability we call "sensitive." The fruit of both species is eaten in India; but its acidity is intolerable to Europeans. Stove evergreen shrubs; half-ripened cuttings in April, in sand, under a bell-glass, and in bottom-heat; loam and peat. Summer temp., 60° to 85°; winter, 55° to 60°.

A. bilimbi (*bilimbi-tree*). 8. Reddish-yellow. August. E. Ind. 1791.

A. carambola (carambola-tree). 10. Greenish-red. Ceylon. 1733.

AVERRUNCATOR (from the Latin *averrunco*, to prune). A small pair of powerful shears, on a long handle, for severing boughs on lofty trees.



AVIARY. This building, devoted to the preservation of live birds, distinguished for the beauty either of their notes or plumage, is rarely admitted within a garden; and still more rarely is it sufficiently ornamental, or sufficiently free from disagreeables, to be a source of pleasure.

AXIL. This term, meaning, literally, the *arm-pit*, is used by botanists to indicate the point of the angle between a leaf and a branch, or between a branch and the stem.

AYE'NIA. (Named after the Duke d' Ayen. Nat. ord., *Byttneriads* [*Byttneriaceæ*], formerly among *Stereuliads*. Linn., 5-*Pentandria* 1-*Monogynia*.)

Stove plants; cuttings in sand; rich soil; common stove treatment.

A. laevigata (smooth). 2. Scarlet. Jamaica. Evergreen under-shrub.
— *pusilla* (small). 1. Purple. August. Jamaica. 1756. Biennial.

AZA'LEA. (From *azaleos*, dry; in reference to the habitation of the plant. Nat. ord., *Heathworts* [*Ericaceæ*] Linn., 5-*Pentandria* 1-*Monogynia*.)

It was said that the Pontic honey which stupefied the Greek soldiers was collected from *Rhododendron Ponticum*; but Pallas believes it to have been gathered from *Aza'lea Pontica*. All the greenhouse species are evergreen, except *A. squamata*; and all the hardy species are deciduous. The hardy species, by layers, made in summer and autumn, and doing best in sandy peat, though many will thrive well in peat and loam; the Indian species and varieties are propagated by seed, and cuttings of stiff, but not over-hard, shoots, inserted in sand, under a bell-glass; sandy peat. Summer temp., 60° to 75°, if required to bloom early; winter, 45° to 55°. A lower temperature will suit, if late bloom is wanted.

HARDY.

A. arboreascens (tree-like). 10. Red. June. N. Amer. 1818.
— *bicolor* (two-coloured). 4. Scarlet. June. N. Amer. 1734.
— *cane-scens* (hoary). 3. Red. June. N. Amer. 1812.
— *calendulacea* (marigold-like). 4. Orange. June. N. Amer. 1806.

A. calendulacea chrysolecta (fine-golden). 4. Yellow. June. N. Amer.
— *crocea* (saffron-coloured). 4. Saffron. June. N. Amer.
— *cuprea* (copper-coloured). 4. Copper. June. N. Amer.
— *flammea* (flame-coloured). 4. Red. June. N. Amer. 1812.
— *grandiflora* (large-flowered). 4. Orange. June. N. Amer.
— *igne-scens* (fire-coloured). 1. Red. June. N. Amer.
— *splendens* (shining). 4. Orange. June. N. Amer.
— *triumphans* (triumphant). 4. Orange. June. N. Amer.
— *glauca* (dwarf-glaucous). 2. White. June. N. Amer. 1734.
— *hispida* (bristly). 5. White. June. N. Amer. 1734.
— *ledifolium* (ledum-leaved). 2. White. April. China. 1824.
— *nitida* (shining-leaved). 4. White. April. N. Amer. 1812.
— *nudiflora* (naked-flowered). 3. Deep pink. June. N. Amer. 1734.
— *alba* (early-white). 4. White. June. N. Amer.
— *alba-plena* (double-white). 4. White. June. N. Amer.
— *blanda* (soft). 4. Blush. June. N. Amer.
— *carnea* (flesh). 4. Pale red. June. N. Amer. 1734.
— *Caroliniana* (Carolina). 4. Scarlet. June. N. Amer.
— *Coburgii* (Coburg's). Scarlet. June. N. Amer.
— *coccinea* (scarlet). 4. Scarlet. June. N. Amer.
— *corymbosa* (corymbose). 4. Scarlet. June. N. Amer.
— *crispa* (curled). 4. Pink. June. N. Amer.
— *cumalata* (bundled). 4. Scarlet, pink. June. N. Amer.
— *discolor* (two-coloured). 4. White, scarlet. June. N. Amer.
— *fastigiata* (pyramidal). 4. Pink. June. N. Amer.
— *florida* (many-flowered). 4. Pink. June. N. Amer.
— *globoza* (globe-like). 4. Pink. June. N. Amer.
— *glomerata* (round-headed). 4. Pink. June. N. Amer.
— *incana* (hoary). 4. Pink. June. N. Amer.
— *incarnata* (flesh-coloured). 4. Flesh. June. N. Amer.
— *mirabilis* (wonderful). 4. Scarlet. June. N. Amer.
— *magnifica* (magnificent). 4. Scarlet. June. N. Amer.
— *montana* (mountain). 4. Scarlet. June. N. Amer.
— *pallida* (pale-flowered). 4. Pale red. June. N. Amer.
— *paludosa* (marsh). 4. Pale red. June. N. Amer.
— *papilionacea* (butterfly). 4. Striped. June. N. Amer.
— *partita* (fine-parted). 4. White and red. June. N. Amer.
— *parviflora* (small-flowered). 4. June. N. Amer.

- A. nudiflora prolifera* (proliferous). 4. June. N. Amer.
 — *pu'mila* (dwarf). 4. White. June. N. Amer.
 — *purpura'scens* (purplish). 4. Purple. June. N. Amer.
 — *purpu'rea* (purple). 4. Purple. June. N. Amer.
 — *purpu'reo-ple'no* (double-purple). 4. Purple. June. N. Amer.
 — *ro'sea* (rosy). 4. Red. June. N. Amer.
 — *rube'rrima* (reddest). 4. Dark red. June. N. Amer.
 — *rube'scens* (reddish). 4. Red. June. N. Amer.
 — *rubicu'nda* (ruddy). 4. Red. June. N. Amer.
 — *ru'bra* (red). 4. Red. June. N. Amer.
 — *ru'tilans* (shining-red). 4. Dark red. June. N. Amer.
 — *semidu'plex* (semi-double). 4. White. June. N. Amer.
 — *stami'neu* (long-stamened). 4. Red. June. N. Amer.
 — *stella'ta* (starry). 4. Red. June. N. Amer.
 — *tri'color* (three-coloured). 4. Scarlet, white. June. N. Amer.
 — *varia'bilis* (variable). 4. Red. June. N. Amer.
 — *variega'ta* (variegated). 4. Red and white. June. N. Amer.
 — *vers'i'color* (party-coloured). 4. Red and white. June. N. Amer.
 — *viola'cea* (violet-coloured). 4. Violet. June. N. Amer.
 — *Po'ntica* (Pontic). 6. Yellow. June. Turkey. 1793.
 — *albiflora* (white-flowered). 6. White. May. Turkey.
 — *corona'rium* (garland). 7. Yellow. June. Holland. 1832.
 — *cu'prea* (copper-coloured). 6. Copper. June. Turkey.
 — *glau'ca* (milky-green-leaved). 6. Yellow. June. Turkey.
 — *pa'llida* (pale). 6. Pale yellow. April. Turkey.
 — *tri'color* (three-coloured). 6. Pale red. April. Turkey.
 — *specio'sa* (showy). 4. Scarlet. June. N. Amer. N. Amer.
 — *aura'ntia* (orange). 4. Orange. June. N. Amer.
 — *cilia'ta* (fringed). 4. June. N. Amer.
 — *cri'spa* (curled). 4. Scarlet. June. N. Amer.
 — *cuculla'ta* (hooded). 4. June. N. Amer.
 — *ma'jor* (larger-scarlet). 4. Scarlet. June. N. Amer.
 — *obi'liquu* (unequal-sided). 4. June. N. Amer.
 — *prunifo'lia* (plum-leaved). 4. June. N. Amer.
 — *revolu'ta* (rolled-back-leaved). 4. June. N. Amer.
 — *tortu'li'folia* (twisted-leaved). 4. June. N. Amer.
 — *undula'ta* (waved-leaved). 4. June. N. Amer.
 — *visco'sa* (clammy). 2. White. July. N. Amer.
 — *cri'spa* (curled). 4. White. July. N. Amer.
 — *dealba'ta* (whitened). 4. White. July. N. Amer.
 — *f'issa* (cleft). 4. White. July. N. Amer.

- A. visco'sa odora'ta* (scented). 4. White. July. N. Amer.
 — *penicilla'ta* (pencilled). 4. White. July. N. Amer.
 — *pube'scens* (downy). 4. White. July. N. Amer.
 — *rube'scens* (reddish). 4. White. July. N. Amer.
 — *variega'ta* (variegated). 4. White. July. N. Amer.
 — *vitta'ta* (banded). 4. White. July. N. Amer.

GREENHOUSE.

- A. ama'na* (bright-flowered). 1. Crimson, purple. April. Shanghai.
 — *crispiflora* (crisp-flowered). Rose. April. China.
 — *Danielsia'na* (Daniel's). 3. Carmine. June. China. 1830.
 — *India'ca* (Indian). 4. Scarlet. June. China. 1808.
 — *auranti'aca* (orange). 4. Orange. April. China. 1822.
 — *igne'scens* (fire-coloured). 2. Brown. April. China.
 — *lateri'tia* (brick-red-coloured). 2. Red. May. China. 1833.
 — *phoeni'cea* (purple). 3. Purple. April. China. 1824.
 — *purpu'reo-ple'na* (double-purple). 4. Purple. May. China. 1819.
 — *variega'ta* (variegated). 4. Striped. June. China. 1824.
 — *obtu'sa* (blunt-leaved). 1½. Red. March. China. 1844.
 — *ova'ta* (egg-shape-leaved). 8. Pink. China. 1844.
 — *a'lba* (white-flowered). 8. White. May. N. China. 1844.
 — *Sine'nsis* (Chinese). 3. Yellow. May. China. 1823.
 — *squama'ta* (scaly). 2. Rose, crimson. March. China. 1844.

AZALEAS (AMERICAN). These include what are called *Ghent Azaleas*, which are seedling varieties of *A. calendula'cea*, *A. nudiflora*, *A. specio'sa*, and *A. visco'sa*. The varieties were first raised in the neighbourhood of Ghent.

Propagation.—By layers in the month of March: the layers require notching or twisting. If the part buried in the ground is covered with moss they will root more freely. They should not be taken off the parent till after the second year's growth.

Soil.—Sandy peat, in a dry situation, at least eighteen inches deep; but, in a damp one, a foot deep will be sufficient.

Culture.—In spring, protect the young shoots and flowers by hoops in low situations, as the late frosts often destroy the young, early shoots. In winter, and in summer, if the soil is very dry, cover the bed with green moss.

Diseases.—Sometimes the plants die off just at the surface of the soil, owing to too much moisture. The remedy, if the situation is low and damp, is either to

drain it thoroughly, or to raise the bed completely above the general level of the ground.

Varieties may be raised by crossing the kinds in such a way as is likely to effect a pleasing change. Choose the best forms and brightest colours; let the plants with flowers of the best form be the seed-bearing mother, and rely for the colour upon the pollen of the male. Sow the seed in April, in pans, placed under a cold frame; prick the seedlings out the year following in beds, four inches apart, to remain till they flower.

AZALEAS (INDIAN OR CHINESE).

Raising varieties.—The best and most certain way to obtain new varieties is by impregnating the best-shaped flowers with the pollen of some fine, high-coloured variety. Remove the anthers before they burst from the one intended to seed; cover with fine gauze the flower impregnated, to prevent impregnation by insects. When the seed is ripe, gather it, and sow it the February following in shallow pans, in a gentle heat. As soon as the seedlings have two or three leaves, transplant them into fresh, sandy peat, in deeper pans. They may remain in these pans till the spring following; then pot them singly into 2½-inch pots, and grow them on, re-potting them as they require it, till they flower.

Propagation by cuttings.—Take the young tops, three inches long; dress them by cutting off the bottom leaves. Fill a pot, to within an inch of the top, with sandy peat; fill up the rest with silver sand; put in the cuttings thickly; water gently, and fit a bell-glass just within the rim of the pot; place them in a temperature of 55° to 60°, and shade from the sun. They should thus remain till rooted; then place them in a greenhouse for a week or two; and remove the bell-glass every night, replacing it during the day. They may then be potted off singly into small pots, and placed in a close frame till fresh roots are made; then gradually inure them to bear the full sun and air; re-pot, and grow on to any size required.

Propagation by grafting.—See **GRAFTING**. The best mode is that called *side-grafting*. The grafts must be very small,—not more than 1 to 1½-inch long; tie them with worsted, or thick cotton thread, to the stock. The best time is early spring. Place the grafted plants in a close frame, in gentle heat, or under hand-glasses,

upon sand, in a propagating house. *The stock* most suitable is the *Aza'lea I'ndica a'lba*, or *A. phani'cea*, both easy to strike.

Soil.—Sandy peat three-fourths, light loam one-fourth.

Summer culture.—Azaleas require the same treatment as Camellias. After the bloom is over give them a moderate degree of artificial heat, 55° to 60°. Syringe them freely during that period. As soon as they have made their growth, give plenty of air for a fortnight, and then set them behind a low, north wall till autumn.

Winter culture.—As soon as there is any fear of frost, remove them into an airy greenhouse, and keep them just from frost, and give very moderate supplies of water. When they begin to show flower, give more heat, and a more liberal supply of water.

Insects.—The *Thrips* is the great pest of Azaleas; but the *Green-fly* is also apt to trouble them when growing. Both insects may be destroyed by tobacco-smoke frequently applied.

Diseases.—These plants are often attacked by a disease which causes them to die off just at the crown of the roots. The small-leaved varieties, such as *A. I'ndica*, var. *Gledstane'sii*, *lateri'tia*, and *variega'ta*, are especially subject to die off thus prematurely. To prevent this, they should be all grafted upon the free-growing stocks.

AZA'RA. (Named after *J. N. Azara*, a Spanish patron of botany. Nat. ord., *Bixads* [Flancorticiacæ]. Linn., 13-*Polyandria* 1-*Monogynia*.)

Greenhouse evergreens. Cuttings in sand; under glass, in slight heat. Sandy loam. Summer temp., 60° to 75°; winter, 55° to 60°.

A. dentu'ta (toothed-leaved). 10. Yellow. Chili. 1830.

—*integrifo'lia* (entire-leaved). 18. Concepcion. 1832.

—*serru'ta* (saw-edged). 12. Chili. 1832.

B

BABIA'NA. (From *babianer*, the Dutch for baboon; in reference to the bulbs being eaten by the baboons. Nat. ord., *Irids* [Iridacæ]. Linn., 3-*Triandria* 1-*Monogynia*.)

All greenhouse bulbs, from the Cape of Good Hope. Offsets; sandy peat and loam; water freely when growing. Keep dry when at rest. Those potted in autumn must be kept in a cold pit or greenhouse during winter. Those planted in spring, in a warm border, should be taken up before winter, and kept secure from frost.

B. angustifo'lia (narrow-leaved). 1. Variegated. May. 1757.

- B. bicolor** (two-coloured). Blue, white. June. 1843.
 — **disticha** (two-ranked). $\frac{1}{2}$. Blue. June. 1774.
 — **mucronata** (sharp-pointed). $\frac{1}{2}$. Purple. June. 1825.
 — **naná** (dwarf). $\frac{1}{2}$. Blue. April. 1807.
 — **obtusifolia** (blunt-leaved). $\frac{1}{2}$. Blue. May. 1825.
 — **plicata** (folded). $\frac{1}{2}$. Purple. May. 1774.
 — **multiflor** (full-flowered). $\frac{1}{2}$. Purple. June. 1834.
 — **piropiæra** (purple). $\frac{1}{2}$. Purple. May. 1806.
 — **rigens** (gaping-flowered). $\frac{1}{2}$. Purple. May. 1782.
 — **rubrocyanæa** (red and blue). $\frac{1}{2}$. Blue, red. April. 1794.
 — **sambucina** (elder-scented). $\frac{1}{2}$. Blue. April. 1799.
 — **spathacea** (sheathy). $\frac{1}{2}$. Light blue. June. 1801.
 — **stricta** (upright). 1. Blue, white. May. 1757.
 — **sulphurea** (sulphur-flowered). $\frac{1}{2}$. Yellow. May. 1795.
 — **tenuiflora** (slender-flowered). $\frac{1}{2}$. Purple. May. 1825.
 — **Thunbergii** (Thunberg's). 1. White and red. April. 1774.
 — **tubata** (long-tubed). $\frac{1}{2}$. Yellow and red. June. 1774.
 — **tubiflora** (tube-flowered). $\frac{1}{2}$. Dark red. May. 1774.
 — **villosa** (hairy). $\frac{1}{2}$. Purple. August. 1778.

BABINGTONIA. (Named in compliment to *Charles Babington, Esq.*, of Cambridge, a distinguished botanist. Nat. ord., *Myrtleblooms* [Myrtaceæ]. Linn., 12-*Icosandria* 1-*Monogynia*. Allied to *Leptospermum* and *Bæckea*.)

A greenhouse evergreen shrub. Cuttings of half-ripened wood in sand, under a bell-glass; peat and loam, both fibry, with a small portion of leaf-mould, dried cowdung, and silver sand. Winter temp., 45° to 50°.

B. camphorosma (camphor-smelling). 7. Pinkish. July. Swan River. 1841.

BACA'ZIA. See **BARNADE'SIA**.

BA'CCHARIS. Ploughman's Spikenard. (From *Bacchus*, wine; referring to the spicy odour of the roots. The ancients sometimes boiled down their wines, and mixed them with such spices. Nat. ord., *Compositæ* [Asteraceæ]. Linn., 19-*Syn-genesia* 2-*Superflua*.)

Cuttings under glass, with or without heat, according as the species are stove, greenhouse, or hardy; loam and peat.

GREENHOUSE.

- B. alata** (winged-stemmed). 5. Pale yellow. December. 1829.
 — **angustifolia** (narrow-leaved). 2. White. July. N. Amer. 1812.
 — **ivæfolia** (iva-leaved). 3. White. July. America. 1696.

STOVE.

- B. adnata** (adhering-stamened). 6. Purple. August. S. Amer. 1823.
 — **confertifolia** (crowded). 3. White. July. Mexico. 1825.
 — **glutinosa** (clammy). 3. White. August. Peru. 1824.

B. Indica (Indian). 3. White. October. E. Ind. 1819.

- **parviflora** (small-flowered). 3. White. July. Peru. 1820.
 — **scoparia** (broom-like). 3. Cream-coloured. July. Jamaica. 1820.

HARDY.

- B. Dioscoridis** (Dioscorides's). 4. White. September. Levant.
 — **glomeruliflora** (cluster-flowered). 3. White. August. N. Amer. 1817.
 — **halimifolia** (halimus-leaved). 4. White. October. N. Amer. 1683.
 — **tycopodioides** (clubmoss-like). White. July. Mauritius. 1825.

BACKHO'SIA. (Named in compliment to *Mr. James Backhouse*, of York. Nat. ord., *Myrtleblooms* [Myrtaceæ]. Linn., 12-*Icosandria* 1-*Monogynia*.)

A greenhouse evergreen shrub. Cuttings of half-ripened shoots in April, in sand, under a bell-glass. Peat and loam, both fibry, and a little white sand. Summer temp., 55° to 75°; winter. 40° to 45°.

B. myrtifolia (myrtle-leaved). 16. Pale yellow. May. N. S. Wales. 1844.

BA'CTRIS. (From *baktron*, a cane; the young stems being used for walking-sticks. Nat. ord., *Palms* [Palmaceæ]. Linn., 21-*Monæcia* 6-*Hexandria*. Allied to *Cocos*.)

Palm walking-sticks are much used in England, under the name of *Penang layer*. All stove palms. Seeds; sandy loam. Summer temp., 65° to 85°; winter, 60°.

- B. caryotæfolia** (caryota-leaved). 10. Brazil. 1825.
 — **cuspidata** (tapering-leaved). 20. Brazil. 1826.
 — **Guianensis** (Guiana). 16. Guiana. 1820.
 — **macracantha** (long-spined). 20. Brazil. 1823.
 — **major** (greater). 25. Carthage. 1800.
 — **minor** (less). 12. S. Amer. 1691.
 — **pectinata** (comb-leaved). 15. Brazil. 1825.

BADGER'S BANE. *Aconitum meloetorum*.

BÆCKIA. (Named after *Dr. Bæck*, a Swedish physician. Nat. ord., *Myrtleblooms* [Myrtaceæ]. Linn., 8-*Octandria* 1-*Monogynia*.)

Greenhouse evergreen shrubs. All white-flowered. Cuttings in spring, under a glass; sandy peat, and lumpy, fibry loam. Winter temp., 40° to 45°.

- B. camphorata** (camphor-scented). 3. July. N. Holland. 1818.
 — **densiflora** (thickly-flowered). 3. September. N. S. Wales.
 — **diosmafolia** (diosma-leaved). 3. August. N. Holland. 1824.
 — **frutescens** (shrubby). 3. November. China. 1806.
 — **gracilis** (slender). 2. N. Holland. 1826.
 — **linifolia** (flax-leaved). 3. August. N. Holland. 1818.
 — **ramosissima** (branchiest). 3. N. Holland. 1824.
 — **saxicola** (rock-dwelling). 2. July. N. Holland. 1824.
 — **virgata** (twiggy). 3. September. New Caledonia. 1806.

BÆRIA. (Named after *Professor Bær*,

of the University of Dorpat. Nat. ord., *Compositæ* [Asteraceæ]. Linn., 19-*Syn-genesia* 2-*Superflua*. Allied to *Callirhoe*.)

Hardy annual. Seeds, in March and April; common soil.

B. chrysostoma (golden-mouthed). 1. Yellow. May. California. 1835.

BAKED is a term descriptive of the hard, impervious state of clayey soils, long exposed to drought. It can be prevented only by altering the staple of the soil, by the admixture of sand, chalk, coal-ashes, and other matters less cohesive than clay.

BALCONY. A word probably derived from the Persian, signifying an ornamentally-barred window, and by us applied to a frame, usually of iron, and encompassed with a balustrade, placed in front of one window, or of several windows. It is an excellent place for giving air to room-plants, and for the cultivation of some flowers.

BALA'NTIUM. (From *balantion*, a purse; referring to the shape of the seed-pouch, or indusium, on the back of the leaf. Nat. ord., *Ferns* [Polypodiaceæ]. Linn., 24-*Cryptogamia* 1-*Filices*.)

Stove herbaceous *Ferns*. Divisions; peat and loam. Summer temp., 60° to 70°; winter, 50° to 60°.

B. cucitum (cushion). 3. Brown. August. Madeira.

BALBI'SIA. See *LEDOCA'RPUM PEDUNCULATIS*.

BALM. (*Melissa officinalis*.) This hardy herbaceous plant has a citron scent and aromatic flavour. It is cultivated now only for making a grateful drink for the sick.

The Soil best suited to its growth is any poor and friable, but rather inclining to clayey than sandy. Manure is never required. An eastern aspect is best for it.

Planting.—It is propagated by root division (of which the smallest piece will grow), and by slips of the young shoots. The first mode any time during the spring and autumn, but by slips only during May or June. If divisions of an old plant are employed, they may be planted at once where they are to remain, at twelve inches apart; but if by slips, they must be inserted in a shady border, to be thence removed, in September or October, to where they are to remain. At every removal water must be given, if dry weather, and until they are estab-

lished. During the summer they require only to be kept clear of weeds. In October the old beds (which may stand for many years) require to be dressed, their decayed leaves and stalks cleared away, and the soil loosened by the hoe or slight digging.

Old beds may be gathered from in July, for drying, but their green leaves, from March to September; and those planted in spring will even afford a gathering in the autumn of the same year. For drying, the stalks are cut, with their full clothing of leaves, to the very bottom, and the drying completed gradually in the shade.

BALM OF GILEAD. *Dracoc'epalum Canarie'nse*.

BALSAM APPLE. *Momo'rdica balsami'nea*.

BALSAMI'NA. See *IMPA'TIENS*.

BALSAMS. By this name are usually known the varieties of the common annual, *Impatiens balsami'na*, by some needlessly separated, with a few others, into a separate genus, and called *Balsami'na hortensis*.

Culture.—The chief object in cultivating these is their fine, large, double, flowers; and, to secure this object, seed should be saved only from the finest plants; and, if the seed is several years old, the plants will be less luxuriant, and the blooms will be more double.

To have them very fine, the seed should be sown in a sweet hotbed, in the middle of March; the plants pricked out into small pots when three inches in height, using light, rich soil, shifting them again, and successively, never allowing them to be pot-bound, and plunging the pots into a medium temperature of 75°, until some time after their last shifting into eight, twelve, or sixteen-inch pots, according as you aim at moderate-sized or very large specimens. Allow, all the time, a current of air, less or more, according to the weather, to keep the plants bushy, and using richer materials every time of potting, until the last soil used may consist of nearly as much very rotten, but sweet dung (cow-dung is best), as turfy, sandy loam.

Successions may be sown in April and May, and treated in a similar manner, either for pots, or to be turned into beds, where they frequently do well until the middle of October.

When you cannot accommodate any

but the best flowers in the greenhouse, adopt the following method :— After pricking out into three or four-inch pots, and plunging them in the bed, allow the pots to get full of roots, keep them drier and cooler, and give plenty of air, which will soon cause flowers to appear ; then select plants with best flowers, rub every flower-bud off them, fresh pot, disentangling the roots a little as you proceed, and grow them on as advised above ; and what you lose in time you will make up in selectness.

BALSAMODE'NDRON. (From *balsamon*, balm, or balsam, and *dendron*, a tree. Nat. ord., *Amyrids* [*Amyridaceæ*]. Linn., 8-*Ocandria* 1-*Monogynia*.)

According to Capt. Harris, Myrrh is obtained, on the Abyssinian coast, from a species of this genus ; and the Balsson of Bruce, or *Balm of Mecca*, is the produce of another species of this Balsam-tree. It is a stove tree. Sandy loam, and a little rotten dung ; cuttings of ripe young wood in April, under a glass, and in heat. Summer temp., 60° to 80° ; winter, 55° to 60°.

B. Zeylanicum (Ceylon). 30. Ceylon.

BALSAM OF CAPE'VI. *Copaifera*.

BALSAM-TREE. *Clusia*.

BAMBU'SA. Bamboo Cane. (From *bambos*, its Indian name. Nat. ord., *Grasses* [*Graminaceæ*]. Linn., 6-*Hexandria* 1-*Monogynia*.)

The very young shoots of the Bamboo are eaten in India as asparagus. Stove perennials. Suckers, in spring or autumn ; rich loam. Summer temp., 60° to 85° ; winter, 55° to 65°.

B. aristata (awned). 20. Apetal. E. Ind. 1824.
— *arundinacea* (reed-like). 40. Apetal. E. Ind. 1730.

— *glauca* (milky-green). 20. Apetal. E. Ind. 1826.

— *negra* (black). 20. Apetal. E. Ind. 1825.

— *pubescens* (downy). 20. Apetal. E. Ind. 1826.

— *spinos* (spiny). 20. Apetal. E. Ind. 1820.

— *stricta* (upright). 20. Apetal. E. Ind. 1821.

— *verticillata* (whorl-flowered). 20. Apetal. India. 1803.

BANA'NA, OR PLANTAIN. *Musa*.

BANE-BERRY. *Actea*.

BANISTERIA. (Named after the Rev. J. Banister, a zealous botanist. Nat. ord., *Malpighiads* [*Malpighiaceæ*]. Linn., 10-*Decandria* 3-*Trigynia*.)

Stove plants. Sandy loam and peat ; cuttings of half-ripened wood in heat, under glass. Summer temp., 60° to 90° ; winter, 60° to 65°.

TWINERS.

B. chrysophylla (golden-leaved).

— *ciliata* (fringed). 10. Yellow. Brazil. 1796.

— *dichotoma* (twin-branched). Yellow. June. S. Amer. 1814.

— *emarginata* (single-notched). Yellow. June. W. Ind. 1826.

— *sericea* (silky). 6. Yellow. July. Brazil. 1810.

B. Sinemariensis (Guiana). Yellow. August. Guiana. 1824.

— *tenuis* (slender). Yellow. Buenos Ayres.

— *tiliafolia* (lime-leaved). Purple. August. Java. 1820.

— *tomentosa* (soft-haired). 10. Yellow. July. S. Amer. 1820.

— *Zanzibaria* (Zanzibar). 10. Yellow. Zanzibar. 1825.

SHRUBS.

B. ferruginea (rusty). 10. Yellow. Brazil. 1820.

— *fulgens* (shining-fruited). 6. Yellow. W. Ind. 1759.

— *Humboldtiana* (Humboldt's). 19. Yellow. S. Amer. 1824.

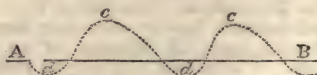
— *laurifolia* (bay-leaved). 10. Yellow. Jamaica. 1733.

— *ovata* (egg-shape-leaved). 6. Yellow. July. St. Domingo. 1826.

— *periplocafolia* (periploca-leaved). 10. Yellow. July. Porto Rico. 1818.

— *splendens* (shining). 10. Yellow. S. Amer. 1812.

BANKS (SLOPING) are very desirable in a kitchen-garden, not only because they aid in forwarding the crops on their south front, and retarding those on their north front, but because they much increase the cultivatable surface. Supposing the banks to run east and west, the south side, especially as respects all low-growing things, such as French beans, potatoes, &c., will produce eight days earlier than when cultivated on a level ; while the north side will retain lettuces, &c., during summer, much longer fit for the table. The surface of the ground is also increased, notwithstanding learned assertions to the contrary. In making them, at first, in shallow soils, they should not be wider than six feet at the base ; but, as the soil becomes improved, they may be from ten to twelve feet in width. In deep soils, the banks may be formed by trenching in the usual manner, only throwing them into shape by a line and stakes. In thin soils, care should be taken to have plenty of room in the first opening to stir the sub-soil, and then replace again the surface-soil on the surface. The accompanying sketch will



give some idea as to how they are formed, each ridge being twelve feet wide at the base. A B is the ground level, c the apex of the ridge, and d d paths between. Of course they could not be raised so high, at first, without impoverishing the

other ground. If drained beneath the paths, all the better; for, in heavy land, without drainage and deep stirring, the moisture will be long retained. If at c there is a board fixed, or even a row of dwarf, hardy peas, the south side will be rendered still warmer, and the north side more cool and late. Such banks, therefore, may not only be used for vegetables, but also for accelerating and retarding fruits, such as the strawberry. Owing to the depth of soil thus obtained, if the surface is kept stirred, you will never need much of the water-pot, even in the driest weather. The right hand, or south side, should be the longest; and, in a succession of ridges, the north-ernmost one should be the highest.

BA'NKSEA. (Named after *Sir Joseph Banks*, a distinguished patron of natural history. Nat. ord., *Proteales* [*Proteaceæ*]. Linn., 4-*Tetrandria* 1-*Monogynia*.)

All interesting greenhouse plants, from New Holland. Seeds, when obtainable, should be sown in spring or summer, in sandy peat, and placed in the greenhouse; seedlings potted off as soon as they can be handled, otherwise they will skank off. Some kinds are most easily propagated by layers, and a few rare ones by grafting; but most are obtained by cuttings of the ripened shoots, with most of the leaves attached, inserted by the sides of a pot, placed under a hand-light, kept close, and shaded from sunshine during the day, and air given, and the glass removed for a time during the night. Sandy peat, with a little loam to the more strong-growing. Summer temp., 50° to 65°; winter, 35° to 45°.

- B. attenuata* (tapering). 6. Yellow. 1794.
- australis* (southern). 6. Green. 1812.
- Brownii* (Miss Brown's). 1830.
- Caleyii* (Caley's). 1830.
- coccinea* (scarlet-flowered). 6. Scarlet. 1803.
- collina* (hill). 6. Yellow. 1800.
- compar* (well-matched). 6. Yellow. 1824.
- Cunninghamii* (Cunningham's). 6. Pale yellow. 1822.
- cylindrostachya* (cylindric-spiked).
- dentata* (toothed). 4. Yellow. 1822.
- Dryandraoides* (*Dryandra*-like). 6. Yellow. 1822.
- elatior* (taller). 20. Yellow. 1824.
- ericifolia* (heath-leaved). 6. Yellow. 1788.
- Goodii* (Good's). 1830.
- grandis* (great-flowered). 2. Yellow. 1794.
- Hugelii* (Hugel's). Yellow. 1837.
- ilicifolia* (holly-leaved). Scarlet. 1837.
- insularis* (island). 6. Yellow. 1822.
- integrifolia* (whole-leaved). 12. Yellow. 1788.
- latifolia* (broad-leaved). 30. Green. July. 1802.
- marcescens* (permanent-leaved). 6. Yellow. 1794.
- marginalia* (bordered). 6. Yellow. July. 1804.
- media* (mediate). 6. Yellow. 1824.
- Menziesii* (Menzies's). Yellow. 1837.
- nutans* (nodding-flowered). 4. Yellow. June. 1803.
- oblongifolia* (oblong-leaved). 15. Yellow. July. 1805.

- B. paludosa* (marshy). 2. Yellow. March. 1805.
- prostrata* (prostrate). 2. Yellow. 1824.
- pulchella* (neat-flowered). 6. Yellow. 1805.
- quercifolia* (oak-leaved). 6. Yellow. 1805.
- Solandra* (Solander's). 6. 1830.
- speciosa* (showy). 6. Yellow. July. 1805.
- spinulosa* (small-spined). 6. Yellow. August. 1788.
- spherocarpha* (round-fruited). 6. Yellow. 1803.
- verticillata* (whorled). 12. Yellow. August. 1794.

BA'OBAB-TREE. *Adansonia*.

BA'PHIA. (From *baphe*, a dye; the Camwood or Barwood, from which a brilliant red-colour is obtained, is from *B. nitida*. Nat. ord., *Leguminous Plants* [*Fabaceæ*]. Linn., 10-*Decandria* 1-*Monogynia*. Allied to the Carob-tree.)

Stove tree. Cuttings; sandy peat. Summer temp., 60° to 85°; winter, 55° to 60°.

B. nitida (shining). 30. White. August. Sierra Leone. 1793.

BAPTISIA. (From *bapto*, to dye; some of the species possessing dyeing properties. Nat. ord., *Leguminous Plants* [*Fabaceæ*]. Linn., 10-*Decandria* 1-*Monogynia*. Allied to *Podalyria*.)

Hardy herbaceous plants, except where otherwise specified. Division; common border-soil.

- B. alba* (white-flowered). 2. White. June. N. Amer. 1724.
- auriculata* (eared). Blue. June. N. Amer. 1812.
- australis* (southern). 2½. Blue. June. N. Amer. 1758.
- confusa* (confused). Blue. June. N. Amer. 1812.
- exaltata* (exalted). 3. White. June. N. Amer. 1724.
- lanceolata* (lanceolate). 1. Yellow. July. N. Amer. 1818.
- minor* (smaller). 1½. Blue. June. N. Amer. 1829.
- mollis* (soft). 1½. Blue. June. N. Amer. 1824.
- perfoliata* (perfoliate). 3. Yellow. August. Carolina. 1732.
- tinctoria* (dyer's). 1½. Yellow. July. N. Amer. 1750.
- versicolor* (various-coloured). 4. Light purple. July. N. Amer. 1824.
- villosa* (long-haired). 2. Yellow. June. N. Amer. 1811.

BARBACE'NIA. (Named after *M. Barbacena*, a governor of Minas Geraes. Nat. ord., *Bloodroots* [*Hæmodoraceæ*]. Linn., 6-*Hexandria* 1-*Monogynia*. Allied to *Vellozia*.)

Stove herbaceous perennials. Divisions; sandy loam. Summer temp., 60° to 80°; winter, 45° to 55°.

- B. gracilis* (slender). Red. March. Brazil.
- purpurea* (purple-flowered). Purple. July. Brazil. 1825.
- Rogierii* (Rogers's). Purplish-violet. 1850.
- sanguinea* (blood-coloured). Deep crimson. 1847.
- squamata* (scaly-stalked). ½. Yellow, crimson. March. Brazil. 1841.

BARBADOES CEDAR. *Juniperus Barba-*
de'nsis.

BARBADOES CHERRY. *Malpighia*.

BARBADOES GOOSEBERRY. *Pere'skia*.

BARBADOES LILY. *Hippeastrum eques-*
tris.

BARBA'REA. Winter Cress. (From be-
ing formerly called the herb of *Sta. Bar-*
bara. Nat. ord., *Crucifers* [Brassicacæ].
Linn., 15-*Tetradynamia*. Allied to *Arabis*.)

All hardy herbaceous perennials, except *B.*
stricta. Division; common soil.

B. arcuata (bowed). 2. Yellow. July. Ger-
many. 1833.

— *orthoceras* (straight-podded). 1½. Yellow.
June.

— *praecox* (early-*Deltoides*-cress). 1. Yellow.
October. England.

— *stricta* (upright). Yellow. Britain. Hardy
biennial. Raised from seed.

— *vulgaris* (common). 1½. Yellow. July. Britain.

BARBERRY. (*Berberis vulgaris*.) There
are five varieties of the Common Bar-
berry: the red, without and with stones;
the black sweet, which is tender, and re-
quires a sheltered border; the purple;
and the white. The seedless (*B. vulgaris*
aspera) is mostly preferred for pre-
serving purposes. The fruit is acid, and
the bark is very astringent.

Propagation.—Suckers, cuttings, and
layers may be employed, either in the
spring or autumn. The seed is very
rarely used.

Soil.—A sandy or calcareous soil, with
a dry sub-soil, suits it best.

Culture.—It requires no other pruning
than such as is necessary to keep it
within bounds. As the fruit is very te-
dious to gather, it is well to keep the
middle of the tree open by pruning,
somewhat like gooseberry-pruning. Their
spines are so formidable, that we have
known the common kinds used with good
effect to stop gaps in hedges liable to
much trespass.

Fruit.—This is fully ripe in October
and is gathered in entire bunches for
preserving, pickling, and candying.

Diseases.—It is liable to be infected
with a parasitical fungus, once believed
to be the same as that which is the mil-
dew on wheat; but they are now known
to be different species. That which preys
upon the Barberry is *Puccinia*, and that
which attacks Wheat is *Uredo*.

BARBIE'RIA. (Named after J. B. G.
Barbier, M.D., a French naturalist. Nat.
ord., *Leguminous Plants* [Fabacæ].
Linn., 17-*Diadelphia* 4-*Decandria*. Al-
lied to *Cajanus*.)

Stove evergreen shrub. Cuttings of half-
ripened wood in sand, under a glass; sandy peat.
Summer temp., 68° to 85°; winter, 50° to 55°.

B. polyphylla (many-leaved). Reddish-purple.
Porto Rico. 1818.

BARK. The refuse bark from the tan-
ner's yard is employed by the gardener
as a source of heat, and, when thoroughly
broken down by putrefaction, as a ma-
nure.

As a source of heat, it is much less used
than formerly, flues, steam, and the hot-
water system having very generally and
most deservedly superseded it. Bark for
heating requires frequent stirring and re-
newing, and, if too much moisture be
added, is apt to give out an excessive and
irregular heat. In addition, it is a trou-
blesome harbour for predatory insects.

Bark fresh from the tan-yard, being
thrown lightly together under a shed,
must be gently moistened, if dry, and
turned over twice a-week, to expose all
its particles to the air. Unless this be
done the fermentation will not be gen-
eral or regular. This is to be continued
for a month or five weeks, in warm wea-
ther the shorter time being requisite;
and then, having acquired a general and
equal heat, it is ready for use in the
stove. Usually it will continue to afford
heat for a period varying between three
and six months, but sometimes ceases to
ferment without any apparent cause.
Whenever the heat declines, the tan
must be taken out, sifted, the dusty parts
removed, and some fresh tan added.
Sometimes turning the old tan and moist-
ening it will be sufficient.

It is desirable, on the first formation
of a bed, to mix new and old tan to-
gether, in which case the quantity of new
bark to be brought into the pit will de-
pend upon the goodness of the bark, and
the bottom-heat required. As much new
tan as will fill two-third parts of the
bark-pit, with a mixture of old, rotten,
reduced almost to earth, will produce a
bottom-heat of about 85°. When old tan
with higher remains of strength is used
to modify the new, the same heat may be
produced if the quantity be not more
than half the capacity of the pit. This
refers to a new pit. After a bark-bed
has been in action, partial renewals of
bark, to keep up the heat, are frequently
sufficient, in the reduced proportion of
one-third, one-sixth, one-twelfth, or less.
At intermediate stages between the par-

tial renewals, the bed requires only to be excited to a brisker fermentation by forking up. About five-sevenths of the pit from the bottom should be occupied by the new and old tan as a fermenting body; and about two-sevenths from the top, or a little more than the depth of the pot, whatever that may be, should consist of old tan incapable of heating, so as to burn the roots of the plants. At least, such should be the ordinary distribution of the tan; but, where peculiar circumstances require a speedy augmentation of heat without displacing the pots, and when fruit is to be swelled off in the last stage, the earthy tan at top may be taken away, and new tan substituted.

As a manure.—See VEGETABLE MATTERS.

BARK-BOUND. When a tree is affected with this disease, cracks will appear in it partially, and, in the case of the Cherry, Apricot, Peach, and Nectarine, gummy discharge will follow. It is a sure indication that either the soil is too rich or not sufficiently drained. The latter is usually the source of the evil, causing a repletion of the interior vessels, which the dry, outer skin cannot expand sufficiently quickly to accommodate. Under-draining, and scrubbing the stem with brine, speedily effect a cure. Scoring the bark lengthwise with a knife is a rude mode of treatment, often followed by canker, more fatal than the disease intended to be removed. If scoring be adopted, it should be early in spring; and the knife should not penetrate below the dry, outer bark.

BARK STOVE, or MOIST STOVE, is a hot-house which, either by having a mass of fermenting matter, or an open reservoir of hot water within-side, has its atmosphere appropriately supplied with moisture, congenially with the habits of some tropical plants. It received the name of Bark Stove, because tanner's bark was formerly a chief source of the heat employed. See STOVE.

BARKE'RIA. (After the late Mr. Barker, of Birmingham, an ardent cultivator of orchids. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-*Gynandria* 1-*Monandria*. Allied to *Lælia*.)

Stove orchids, divisions; fibry peat and sphagnum, in shallow baskets. Summer temp., 60° to 85°; winter, 55° to 60°.

B. elegans (elegant). 1½. Light rose. Mexico. 1836.

B. Lawrenceana (Mrs. Lawrence's). 1. Pink. Guatemala. 1847.

— *Lindleyana* (Dr. Lindley's). 1. Purple and white. November. Costa Rica. 1842.

— *melanocaulon* (dark-stemmed). 1. Lilac. June. Costa Rica. 1843.

— *Skinneri* (Mr. Skinner's). 1½. Pink. Guatemala.

— *spectabilis* (showy). 1. Lilac and purple. July. Guatemala. 1843.

BARKING IRONS, or BARK SCALERS, are for scraping off the hardy outer bark, or dry scales from the stems and branches of trees.

BARLE'RIA. (After the Rev. J. Barrelier, of Paris. Nat. ord., *Acanthads* [Acanthaceæ]. Linn., 14-*Didynamia* 2-*Angiospermia*.)

Stove evergreens, except *B. longifolia*. This may be propagated by seed, the others by cuttings of the young wood, in heat, under a bell-glass; rich loam and peat. Summer temp., 60° to 80°; winter, 50° to 60°.

B. alba (white). 3. July. N. Holland. 1815.
— *boxifolia* (box-leaved). 2. White. July. E. Ind. 1763.

— *caerulea* (blue). 2. Blue. July. E. Ind. 1823.

— *cristata* (crested). 2. Blue. July. E. Ind. 1796.

— *dichotoma* (twin-branched). 2. Purple. July. E. Ind. 1823.

— *flava* (yellow-flowered). 3. Yellow. July. E. Ind. 1816.

— *longifolia* (long-leaved). 2. White. August. E. Ind. 1781.

— *longiflora* (long-flowered). 3. July. E. Ind. 1816.

— *hopulina* (hop-headed). 2. Yellow. August. Mauritius. 1824.

— *prionitis* (prionitis-like). 3. Orange. July. E. Ind. 1759.

— *purpurea* (purple). 2. Purple. September. E. Ind. 1818.

— *solanifolia* (nightshade-leaved). 2. Blue. W. Ind.

— *strigosa* (bristly). 2. Blue. July. E. Ind. 1820.

BARLEY. (*Hordeum vulgare*.) This genus of grasses, being interesting only to the farmer and botanist, has not been included in this work.

BARNADE'SIA. (After Barnaday, a Spanish botanist. Nat. ord., *Composites* [Asteraceæ]. Linn., 19-*Syngenesia* 1-*Æqualis*. Allied to *Mutisia*.)

B. rosea, a very pretty deciduous shrub, requiring to be kept nearly dry, in a greenhouse, in winter. Seeds in hotbeds, in March; cuttings of half-ripened wood in April, in sand, under a bell-glass. Summer temp., 60° to 80°; winter, 45° to 55°.

B. grandiflora (large-flowered). 2. Pale rose. S. Amer. 1844. An evergreen, requiring a cool stove.

— *rosea* (rose-coloured). 1. Pink. May. S. Amer. 1840.

— *spinosa* (spiny). 4. June. Peru. 1825. This has been called *Baccharis spinosa*. Green-house evergreen.

BARNA'RDIA. (Named after *E. Barnard*, *F.L.S.* Nat. ord., *Lilyworts* [Liliaceæ]. Linn., 6-*Hexandria* 1-*Monogynia*. Allied to the Squills.)

Half-hardy, bulbous-rooted plant. Offsets; peat and loam; only wants a little protection in winter.

B. scilloides (squill-like). Pale blue. May. China. 1819.

BAROMETER, OR WEATHER GLASS, so called from two Greek words, signifying a measurer of weight, because it indicates the weight or pressure of the air. We only admit a notice of this because, as a guide to approaching changes of weather, it is useful to the gardener.

Mr. P. Christenson, of Cowes, in the Isle of Wight, lecturer upon astronomy, &c., has arranged a table, which no one having a weather-glass should be without. Its price is only one shilling, and it may be had of C. Wilson, 157, Leadenhall Street. This "Companion to the Barometer" is the result of thirty-two years' observation; and the following is an epitome of the information it gives. During the first six months of the year, when the mercury is *rising*, if the weather has been bad, and the mercury reaches to 29.62 inches, there will be a change; if to 30.12, the weather will be fair; if to 30.29, set fair. If the mercury has been high, and begins *falling*, there will be a change if it declines to 29.90; rain, if it descends to 29.50; and wind, with rain, if it reaches 29.12. During the last six months of the year, if the weather has been foul, and the mercury begins *rising*, there will be a change if it reaches to 29.48; fair, if to 30.13; and set fair if to 30.45. If the weather has been fair, and the mercury begins *falling*, there will be a change if it sinks to 29.87; rain, if to 29.55; and wind with rain, if to 29.28. At any time of the year, if the mercury fall to 28.10, or even to 28.20, there will be stormy weather. These conclusions are from observations made at thirty feet above the sea's level, and, therefore, one-hundredth part of an inch must be added to the height of the mercury for every additional ten feet above the sea's level, where the barometer may happen to be.

BARO'SMA. (From *barys*, heavy, and *osme*, odour; referring to the powerful scent of the leaves. Nat. ord., *Rueworts* [Rutacæ]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Diosma*.)

Greenhouse evergreen shrubs, all natives of the Cape of Good Hope. Cuttings of half-ripened wood in June, under a bell-glass, in sand, without heat; sandy loam and peat. Summer temp., 60°; winter, 35° to 40°.

B. betulifolia (birch-leaved). 2. White. June. 1790.

— *crenulata* (scalloped-leaved). 3. Bluish. April.

— *dioica* (dioecious). 2. White. June. 1816.

— *latifolia* (broad-leaved). White. July. 1789.

— *ovata* (egg-shape-leaved). 2. White. May. 1790.

— *pulchella* (neat). Purple. June. 1787.

BARRED. That part of a plant is said to be *barred* which is striped with a lighter or darker colour than the prevailing colour of that part.

BARREN PLANTS. The male flowers of the cucumber, melon, and other monœcious plants are properly known as *barren* flowers; and the plants of the asparagus, mercury, and other dioecious plants bearing only male flowers, are usually termed barren. These are naturally unfruitful; but there is also a barrenness arising from disease, or the consequences of bad cultivation. If a tree, or any other plant, does not yield the desired produce of fruit of which it is capable, the gardener may be assured that the soil, or the want of drainage, or the manuring, or the pruning, is injurious. Even a *blind* or barren cabbage may be made productive; for its barrenness arises from the central bud being abortive, and it will produce lateral buds, if all but one leaf and the place of the abortive bud be cut away. When a flower has no pistil it is incurably barren. Temperature has great influence over the sex of the flowers produced by a monœcious dioecious plant. A very high temperature caused a water-melon to bear male blossoms only; and a very low temperature made cucumber-plants yield female flowers alone. Mr. Knight had little doubt that the same fruit-stalks might be made, in the plants just noticed, to support flowers of either sex, in obedience to external causes. Our own observations lead us to the conclusion that the cucumber and vegetable marrow, when grown in too cold a temperature, produce a majority of male blossoms.

BARREN SOIL. No soil is absolutely incapable of production; and when it is spoken of as being barren, no more is meant than that, in its present state, it will not repay the cultivator. The unproductiveness arises from a deficiency of

some of the earths; from an excess or deficiency of animal and vegetable matters; or from an excess of stagnant water. No soil can be productive where nineteen parts out of twenty are of any one earth or other substance. If either chalk, or sand, or clay, be in excess, the remedy is found in adding one or both of the other two. An excess of organic matter only occurs in peat soils; and these are reclaimed by draining, paring, and burning, and the addition of earthy matter. Drainage is also the cure for an excess of water.

BARRENWORT. *Epime'dium*.

BARRINGTONIA. (Named after the *Hon. Daines Barrington*. Nat. ord., *Barringtoniads* [Barringtoniaceæ]. Linn., 16-Monadelphia 8-Polyandria.)

Stove evergreen trees and shrubs. *B. echinata* and *platyphylla* were, until lately, separated into a genus, *Commersonia*. Cuttings of ripe shoots under a glass, in a strong heat; lumpy loam and peat. Summer temp., 70° to 90°; winter, 60° to 65°.

B. echinata (hedgehog-fruited). 20. White. Moluccas. 1820.

— *platyphylla* (broad-leaved). 3. White. June. Moluccas. 1806.

— *racemo'sa* (raceme-flowered). 30. Red. Moluccas. 1820.

— *specio'sa* (showy). 30. Scarlet. Indian Archipelago. 1786.

BARTHOLINIA. (Named after *Bartholin*, a Danish physiologist. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-Gynandria 1-Monogynia. Allied to *Serapias*.)

One of those ground-orchids from the Cape which British gardeners have not yet succeeded in cultivating easily. Greenhouse orchid; division of the root; sandy loam. Summer temp., 60° to 70°; winter, 45°.

B. pectinata (comb-leaved). 1. Lilac. November. Cape of Good Hope. 1787.

BARTONIA. (Named after *Dr. Barton*, an American botanist. Nat. ord., *Loasads* [Loasaceæ]. Linn., 12-Icosandria 1-Monogynia.)

Half-hardy plants; seeds; the biennials should be sown in summer, and protected in a cold pit during the winter; the annuals may be sown in the open air, in April, or in a slight hotbed, and transplanted; most of them delight in a sandy soil and a little peat. *B. aurea* does best where the soil is peaty and moist.

ANNUALS.

B. alba'scens (white-stalked). 2. White. Chili. 1831.

— *aurea* (golden-flowered). 3. Yellow. June. California. 1834.

BIENNIALS.

B. nud'a (naked-seeded). 2. White. August. Missouri. 1811.

— *orna'ta* (ornamented). 2. White. August. Missouri. 1811.

BA'ETSIA. (Named after *J. Bartsch*, *M.D.* Nat. ord., *Figworts* [Scrophulariaceæ]. Linn., 14-Didynamia 2-Angiospermia. Allied to *Euphrasia*.)

These require the treatment of choice alpine; hardy annuals; seeds in April, on rock-work.

B. alpina (alpine). 4. Purple. August. Britain. — *latifo'lia* (broad-leaved). 1. Purple. August. South of Europe.

— *odonti'tes* (odontites). 3. Pink. August. Britain.

— *visco'sa* (clammy). 4. Yellow. July. Britain.

WBARWOOD. *aphia*.

BARYO'SMA. See BARO'SMA.

BASE'LLA. Malabar Nightshade. Its Malabar name. (Nat. ord., *Basellads* [Basellaceæ]. Linn., 5-Pentandria 3-Trigynia.)

B. alba and *rubra* are used as spinach in the East Indies; and *B. rubra* yields a rich purple dye; not easily fixed, however. Stove biennials, except where otherwise specified, and mostly climbers. If sown in good heat in February, and treated as a border annual, they will blow freely the same season; rich, lumpy soil.

B. alba (white). 8. White. August. E. Ind. 1688. — *cordifo'lia* (heart-leaved). 6. Pale purple.

August. E. Ind. 1802.

— *lu'cidu* (shining). 6. White. August. E. Ind. 1802.

— *marginata* (bordered). 4. July. Mexico. 1824.

— *ni'gra* (black). 3. White. August. China. 1822.

— *ramo'sa* (branchy). 6. August.

— *rubra* (red). 8. Pink. August. E. Ind. 1731.

— *tubero'sa* (tuberous). 6. Yellow. September. S. Amer. 1824.

BASIL (*O'cymum*.) There are two kinds, the Sweet-scented (*O. basi'licum*), and the Dwarf-bush (*O. mi'nimum*). The young leaf-tops are the parts made use of in soups and salads, their flavour resembling that of cloves.

The supply is never-failing during summer, as they shoot out rapidly for successional supplies.

Sow on a very gentle hotbed, under glass, about the end of March or first of April, to raise plants for the principal or main crop. The frame should be filled up with earth to within three or four inches of the glass, or very shallow frames may be used for purposes as these. When the plants are up, give a little air by tilting the lights; and, as they advance, and the weather is warmer, give them more air, until the lights may be taken off altogether during the day, and put on at night. By the above management, good, hardened plants will be fit for planting out towards the end of May, or beginning of June, into warm borders, or beds of light, rich earth. If the weather be dry at the time of plant-

ing out, let the beds be well watered previously to planting, and plant in the evening. Lift the young plants from the seed-bed with a small fork or trowel, and plant them out with care, eight or ten inches from plant to plant each way, and water them, to settle the earth to the roots. Attend to earth-stirring, and water when required, until the plants are well established. If green tops are required for earlier use, sow in pots, pans, or boxes, and place in any heated structure.

To obtain seed.—Some of the earliest-raised plants must be left ungathered from. These flower from July to September, and, accordingly, ripen their seed in early or late autumn.

BASINING-UP. By this term is meant raising a small bank of earth entirely round a plant, so as to retain water immediately about the roots.

BASKETS, employed by the London gardeners, being made of osier or deal shavings, vary triflingly in size more than measures made of less flexible materials. They are as follows:—

Pottle—a long, tapering basket, made of deal shavings, holding about a pint and a half.

Sea-kale punnets—eight inches diameter at the top, and seven inches and a half at the bottom, and two inches deep.

Radish punnets—eight inches diameter, and one inch deep, if to hold six hands; or nine inches by one inch for twelve hands.

Mushroom punnets—seven inches by one inch.

Salading punnets—five inches by two inches.

Half sieve—contains three imperial gallons and a half. It averages twelve inches and a half diameter, and six inches in depth.

Sieve—contains seven imperial gallons. Diameter, fifteen inches; depth, eight inches.

Bushel sieve—ten imperial gallons and a half. Diameter at top, seventeen inches and three quarters; at bottom, seventeen inches; depth, eleven inches and a quarter.

Bushel basket—ought, when heaped, to contain an imperial bushel. Diameter at bottom, ten inches; at top, fourteen inches and a half; depth, seventeen inches. Walnuts, nuts, apples, and potatoes are sold by this measure. A bushel of the last named, cleaned, weighs fifty-

six pounds; but four pounds additional are allowed if they are not washed.

BASKETS (RUSTIC). These are often suitable ornaments for the reception of flowering-plants upon lawns, and other parts of the pleasure-grounds. These baskets are easily made. Having fixed on the sizes you wish for, procure some inch boards, either of sound oak, which is the best, or of well-seasoned elm or deal. Cut them into the proper lengths, and nail them together the right width; they will then form a square. Mark then the desired form (round or octagon) on this square, and cut it into the desired figure. When this is done, you have the ground-work of your basket; make the basket ten or eight inches deep; and, if your garden is moderately extensive, you may have them the largest size to be manageable, that is from three to five feet in diameter. If a small garden, this size would be inconvenient, and take up too much room. Yet there is no reason why you should not have two or three of these ornaments. For such a garden, the most proper dimensions would be two feet; and for that size, six inches deep would be proportionate. Then proceed to nail to the circular or octagon bottom the sides. If the shape is round, let the pieces of wood to form the sides be narrow, bevel inwards the sides, and shape them so as to form the circle; but if of an octagon form, the pieces will be, of course, of the width of each of the eight sides, and planed to fit at each corner. Fasten them firmly together with nails, and the main foundation and walls of your baskets are complete. On the top of the side put some split hazel rods, of sufficient thickness to cover it, and hang over the outside edge about half an inch. Place some of the same kind close to the bottom; then, between the two, cover the plain boards with some rough oak or elm bark, so closely fitted as to give the idea that the basket has been cut out of a solid tree; or, which is more expensive and troublesome, but certainly more ornamental, cover the sides with (split or whole, as you may fancy) hazel rods, formed into tasteful forms. These should fit so close as to hide completely the material of which the sides are formed. The bark-plan will not require anything more doing to it after it is neatly fitted and securely nailed to the sides; but the

hazel rods should have a coating of boiled linseed-oil applied.

BASS or BAST MATS. These are chiefly made in Russia, from the inner bark of trees (*bast* in the Russ language). Their best use is as a packing-envelope; for, as a protection to wall-trees, they are inferior to netting, and to standard shrubs, structures made of straw (*see* SHELTERS) are to be preferred. They are very serviceable, however, to place over beds of early spring radishes, &c., to prevent the night radiation. This is quite as effectual, much cleaner, and less troublesome than a covering of straw. Shreds of these mats are also useful for many gardening purposes where a ligature or string is required. One of the principal of these is for binding a bud or scion in its place on the stock after grafting. For this we prefer the new *Cuba bast*; but the finest of the ordinary Russian mats will answer equally well, perhaps better, provided the material is very fine and very tough. In selecting a mat for this purpose, the best may be distinguished by two or three qualities:—First, whatever colour the bast be, it must feel silky and somewhat oily to the touch. A full reliance must not be placed on this alone, however; but the strength should be tested by cutting off a fine-looking strand, and stripping off a narrow piece as fine as twine. This, if good, should withstand a considerable amount of tension: it is well, however, to try a second piece. As to colour, such is generally a pale straw.

BA'SSIA. (Named after *M. Bassi*, curator of the Botanic Garden at Boulogne. Nat. ord., *Sapotads* [Sapotaceæ]. Linn., 11-Dodecandria 1-Monogynia.)

The *Bassias* are trees of some importance in India. *B. butyra'cea* yields a thick, oil-like butter from its fruit, or *mahva*. *B. latifo'lia* furnishes a kind of arrack, called *mourra*, by distilling the leaves. The fruit of the Illupie-tree, *B. longifo'lia*, yields oil for lamps, soap-making, and also for food; and Mungo Park's Butter-tree was a species of *Bassia*. Stove trees. Cuttings of ripened young shoots in April, in heat, under a bell-glass; peat and loam. Summer temp., 60° to 70°; winter, 55° to 60°.

B. butyra'cea (buttery). 40. Nepaul. 1823.
— *latifo'lia* (broad-leaved). 40. Yellow. E. Ind.
— *longifo'lia* (long-leaved). 40. E. Ind. 1811.

BASTARD ACACIA. *Robi'nia pseu'do-acacia*.

BASTARD ATOCION. *Sile'ne pseu'do-atocion*.

BASTARD BALM. *Meli'tta*.

BASTARD BOX. *Poly'cala*.

BASTARD CABBAGE-TREE. *Geoffro'ya*.

BASTARD CEDAR. *Guazu'ma* and *Cedre'la*.

BASTARD CHERRY. *Ce'rasus pseu'do-ce'rasus*.

BASTARD CINNAMON. *Cinnamo'mum ca'ssia*.

BASTARD CORK-TREE. *Que'rcus pseu'do-su'ber*.

BASTARD CRACCA. *Vi'cia pseu'do-cra'cca*.

BASTARD DICTAMNUS. *Beringe'ria pseu'do-dicta'mnus*.

BASTARD GROUND-PINE. *Teu'crium pseu'do-chama'pitys*.

BASTARD HARE'S-EAR. *Phy'llis*.

BASTARD HYSSOP. *Teu'crium pseu'do-hysso'pus*.

BASTARD INDIGO. *Amo'rpha*.

BASTARD JASMINE. *Andro'sace chama'ja'sme*.

BASTARD LUPINE. *Trifo'lium lupina'ster*.

BASTARD MANCHINEEL. *Camera'ria*.

BASTARD MOUSE-EAR. *Hiera'cium pseu'do-pilose'lla*.

BASTARD OLBITA. *Lavd'tera o'lbia*.

BASTARD TOAD-FLAX. *The'sium*.

BASTARD QUINCE. *Pyrus-chama'me's-pilus*.

BASTARD VERVAIN. *Stachyta'rpheta*.

BASTARD VETCH. *Pha'ca*.

BASTARD WIND-FLOWER. *Gentia'na pseu'do-pneumona'the*.

BASTARD WOOD-SAGE. *Teu'crium pseu'do-scorodo'nia*.

BATA'TAS. (Aboriginal name. Nat. ord., *Bindweeds* [Convolvulaceæ]. Linn., 5-Pentandria 1-Monogynia. Allied to *Pharbitis* and *Ipomæa*.)

All stove deciduous climbers. Cuttings of stumpy side-shoots, or young shoots slipped from the tubers, just as they begin to grow; in sandy soil, in bottom-heat, and under a hand-glass; rich, sandy loam and fibry peat, with manure-water when growing. Temp., summer, 60° to 85°, with moisture; winter, 48° to 55°.

B. beta'cea (beet-like). 6. Pale violet. Deme-rara. 1839.

— *Bignonioides* (*Bignonia*-like). Dark purple July. Cayenne. 1824.

— *Bonaric'nsis* (Buenos Ayres). 10. Purple.

— *Cavanille'sii* (Cavanilles?). White, red. August. 1815.

— *edu'lis* (eatable-fruited). White, purple. E. Ind. 1797.

— *glaucofo'lia* (milky-green-leaved). Purplish. June. Mexico. 1732.

— *heterophy'lla* (various-leaved). Pale purple. September. Cuba. 1817.

— *jala'pa* (jalap). Rose. August. Mexico. 1845.

— *panicula'ta* (panicked). Purple. July. E. Ind. 1799.

— *pentaphy'lla* (five-leaved). White. August. E. Ind. 1739.

B. Senegalensis (Senegal). White. July. Guinea. 1823.

— *ternata* (three-leafleted). White. July. Brazil. 1824.

— *veno'sa* (veiny). Purple. July. Mauritius. 1820.

— *Waldeckii* (Waldeck's). White and purple. S. Amer. 1847.

— *Willdenowii* (Willdenow's) Purple. July. 1818.

BATEMANNIA. (Called after *Mr. Bateman*, a keen collector and ardent cultivator of orchids, and author of a splendid work on the Orchids of Mexico and Guatemala. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-*Gymndria* 1-*Monogynia*. Allied to *Maxillaria*.)

Stove orchid; divisions and offsets; peat, broken crocks, and sphagnum; plant raised considerably above the surface of pot, or suspended in shallow baskets. Summer temp., 70° to 85°; winter, 60° to 65°.

B. Colleyi (Colley's). $\frac{1}{2}$. Purple, green. August. Demerara. 1834.

BA'TSCHIA. (Named after *J. G. Batch*, a German botanist. Nat. ord., *Borageworts* [Boraginaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*. This really should be united to *Lithospermum*.)

All hardy herbaceous perennials; seeds, or divisions; common soil.

B. cane'scens (hoary). $\frac{2}{3}$. Yellow. July. N. Amer. 1826.

— *Gmelin'si* (Gmelin's). $\frac{1}{2}$. Yellow. June. Carolina. 1812.

— *longiflora* (long-flowered). $\frac{1}{2}$. Yellow. June. Missouri. 1812.

— *sericea* (silky). $\frac{1}{2}$. Yellow. July. N. Amer. 1825.

BAU'ERA. (Named after *Francis and Ferdinand Bauer*, German botanical draughtsmen. Nat. ord., *Hydrangeads* [Hydrangeaceæ]. Linn., 13-*Polyandria* 2-*Digynia*.)

Bau'era is a botanical anomaly which has puzzled the learned as to its proper order. Dr. Lindley has placed it with *Hydrangea*. Green-house evergreen under shrubs; cuttings in sandy soil, under a glass; sandy loam and peat. Summer temp., 50° to 65°; winter, 38° to 45°.

B. humilis (dwarf). 1. Red. September. N. S. Wales. 1804.

— *rubifolia* (madder-leaved). $1\frac{1}{2}$. Pink. September. N. S. Wales. 1793.

BAUH'NIA. Mountain Ebony. (Named after the brothers *John and Caspar Bauhin*, botanists in the sixteenth century. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 10-*Decandria* 1-*Monogynia*.)

One of the tribes of *Cæsalpinia*. All stove evergreen shrubs, except where otherwise specified. Half-ripe cuttings in summer, in sand, placed under a glass, and in moist bottom-heat; light, sandy loam, and a little peat. Summer temp., 60° to 85°; winter, 55° to 60°.

B. aculeata (prickly-stalked). 6. White. W. Ind. 1737.

B. acuminata (taper-pointed-leaved). 8. White. July. E. Ind. 1808.

— *armata* (armed). 6. White. Brazil. 1824. Climber.

— *aurita* (long-eared). 6. White. Jamaica. 1756.

— *Chinensis* (Chinese). 6. Red. China. 1800.

— *corymbosa* (corymbed). 6. White. E. Ind. 1818. Climber.

— *Cumanensis* (Cumana). 20. White. July. Cumana. 1826. Climber.

— *ferruginea* (rusty-leaved). 10. White. E. Ind. 1820. Climber.

— *forficata* (pincer-leaved). 6. White. Brazil. 1823.

— *glabra* (smooth). 15. White. Carthage. 1810. Climber.

— *glaucescens* (milky-green). 6. White. Cumana. 1817.

— *grandiflora* (large-flowered). 4. White. Peru. 1820.

— *Indica* (Indian). 6. White. E. Ind. 1820.

— *inermis* (unarmed). 6. Yellow, red. Acapulco. 1810.

— *Lamarckiana* (Lamarck's). 6. White. S. Amer. 1818.

— *latifolia* (broad-leaved). 6. White. W. Ind. 1818.

— *leptopetala* (slender-petaled). 5. Yellow, green. New Spain. 1818.

— *lunaria* (half-moon-leaved). 6. White. Acapulco. 1820.

— *Madagascariensis* (Madagascar). 4. Madagascar. 1826.

— *Malabarica* (Malabar). 15. White. E. Ind. 1810. Climber.

— *microphylla* (small-leaved). 6. White. S. Amer. 1817.

— *multinervia* (many-nerved). 5. White. Caraccas. 1808.

— *Pauletia* (Pauletia). 4. White. Panama. 1737.

— *pube'scens* (downy). 4. White. Jamaica. 1778.

— *purpurea* (purple). 6. Purple. E. Ind. 1778.

— *racemosa* (racemed). 20. White. E. Ind. 1790. Stove climber.

— *retusa* (abruptly-blunt). 7. White. E. Ind. 1820.

— *sca'ndens* (small-leaved-climbing). 30. White, yellow. E. Ind. 1790. Climber.

— *speciosa* (showy). 10. White. 1820. Stove climber.

— *subrotundifolia* (roundish-leaved). 6. White. Acapulco. 1830.

— *tomentosa* (thickly-haired). 6. Yellow, white. E. Ind. 1808.

— *tria'ntra* (three-stamened). 15. White. E. Ind. 1823. Stove climber.

— *variegata* (variegated). 6. Striped. June. E. Ind. 1790.

BAWD-MONEY. *Me'um*.

BAY-TREE. *Lau'rus no'bilis*.

BEAD-TREE. *Me'lia*.

BEAM-TREE. *Py'rus a'ria*.

BEAN. (*Fa'ba vulga'ris*.) There are many varieties of this vegetable; but we shall only name those which are clearly distinct and valuable.

Mazagon.—This has whitish seeds, rather larger than a horse-bean, two to four feet high. Sown in spring, about ten weeks occur before beans are fit for

table. Many sub-varieties in seedsmen's catalogues.

Long-Pod.—Sandwich, or Lisbon, has various names attached to these. Seeds whitish, about an inch long, and half that in width, flat. Very productive; good for main summer-crops. Sown in spring, about twelve weeks elapse before the beans are fit for table. Three to five feet.

Johnson's Wonderful.—This is a long-pod, but even more productive; and we consider it the best of all the varieties. Pods very numerous; many with six or even eight beans in them, and bearing a succession of pods; seeds rather more broad in proportion to length.

Dutch Long-Pod has seeds still broader in proportion to length.

Green Long-Pod.—Nonpareil, or Genoa, differs chiefly from other long-pods by its seeds being green.

Toker has white, broad, oval seeds. Height, five feet. Sown in spring, its beans are ready in twelve weeks; rather coarse-flavoured.

Windsor.—Seeds whitish, flat, circular, an inch in diameter; only two or three in a pod. Produces a succession of pods; four feet. Many other names prefixed.

Green Windsor differs chiefly from the preceding in the colour of its seed.

The Red-Seeded, White-Blossomed, Red-Blossomed, and some others, have no merits equal to the preceding. The *Fan*, not being more than one foot high, is useful, in small gardens, to grow among other crops; but it is not productive, and its beans come all at once.

Soil and situation.—The soil should vary with the season. For the winter-stand and early crops, a moderately rich and dry soil is best adapted to them, since, if too moist, the seed is apt to decay; whilst a cool-bottomed, more tenacious soil is best for the spring and summer sowings. The situation cannot be too unshaded; but a protection from violent winds is very beneficial.

Times and modes of sowing.—For the first production, in the following year, a large sowing of Long-pods may be made during the middle of November; and plantations may be continued to be made, from the beginning of January to the end of June, once every three weeks. Not later than the 1st of July a last sowing may be made. The early Mazagon is best for the earliest and latest plantings, to produce the same year.

Sowing for transplantation.—If the season has been lost for sowing at proper time, in the natural soil, for the early crops, or ground could not be spared or made ready, then sow for transplanting, either in small pots, turf-sods, or gentle hotbed, and of such extent as can be covered with a frame. If frames and hand-glasses are deficient, matting or litter, kept from injuring the plants by means of hoops, &c., is sometimes employed. Care must be taken that the beans are not weakened by a deficiency of air and light; to guard against it the lights should be taken entirely off every day that excessive wet or cold does not forbid their removal. The usual time for removing them into the open ground, in a south border, is February, in mild and open weather.

Sowing to remain.—When sown to remain, the seed may be inserted in double rows, in drills, drawn by the hoe, from two and a half to three feet apart, from double row to double row, the double rows four inches apart, and two deep. Previous to sowing, in summer, if dry weather, the seed should be soaked for two or three hours in water; or, if sown in drills, these should be well watered immediately before the insertion.

When advanced to a height of two inches, hoeing between the stems of the plants may commence. This should be often repeated. As soon as the various crops come into full blossom, two or three inches length of each stem is broken off. This, by preventing its increase in height, causes more sap to be afforded to the blossom, consequently causing it to advance with more rapidity, and to set more abundantly.

For seed.—No two varieties should be grown near to each other; and, in order to preserve the early ones as uncontaminated as possible, those plants only which blossom and produce their pods the first should be preserved. None of the pods ought to be gathered for the table from them; the after-production of seed is never so fine, and the plants raised from it are always deficient in vigour. They are fit for harvesting when the leaves have become blackish, which occurs at the end of August, or early in September. The pods may be gathered from the stems when ripe enough, and spread out thin, upon a dry, airy, boarded floor, to dry. Those only should be preserved

that are fine and perfect. They are best stored in the pods until required. Seed-beans will sometimes vegetate after being kept for eight or ten years, but are seldom good for anything when more than two years old.

Insects.—See APHIS FABÆ.

BEATO'NTIA. (Named by Dr. Herbert after *D. Beaton*, a Scotch gardener; one of the contributors to the *Cottage Gardener* and to this *Dictionary*. Nat. ord., *Irids* [Iridaceæ]. Linn., 16-*Monadelphina* 1-*Triandria*. Allied to *Tigridia*.)

Greenhouse perennial bulbs. Offsets and seeds; the latter to be sown in a slight hotbed, in March; light, rich soil. To be taken up before frost, or covered up where they have grown, so as to preserve them both from frost and wet.

B. atra'ta (dark-flowered). 2. Dark purple. August. Mexico. 1843.

— *curva'ta* (curved-stalked). Purple. April. Del Monte. 1843.

— *purpu'rea* (purple-flowered). Purple. April. Brazil. 1841.

BEAUFO'RTIA. (Named after *Mary Duchess of Beaufort*. Nat. ord., *Myrtle-blooms* [Myrtaceæ]. Linn., 18-*Polyadelphina* 2-*Polyandria*.)

Greenhouse evergreen shrubs. Cuttings of half-ripened shoots, under a glass, in sand, without heat; loam and peat. Summer temp., 50° to 65°; winter, 35° to 45°.

B. carina'ta (keel-leaved). 3. Scarlet. N. Holland. 1823.

— *Dampie'ri* (Dampier's). 2. Pink. May. Hartog's Island.

— *decussa'ta* (decussated). 3. Scarlet. May. N. Holland. 1803.

— *macroste'mon* (long-stamened). Purple. July. Australia. 1843.

— *purpu'rea* (purple-flowered). Purple. July. Australia. 1841.

— *spa'rsa* (scattered-leaved). 3. Red. N. Holland. 1803.

— *sple'ndens* (shining). 3. N. Holland. 1830.

BEAUMO'NTIA. (Named after *Mrs. Beaumont*, of Bretton Hall. Nat. ord., *Dogbanes* [Apocynaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*.)

One of our first stove twiners, with large, white trumpet-shaped flowers, produced in clusters at the end of the shoots. They succeed best planted out in the borders of a house, intermediate between a stove and a greenhouse. Cuttings of half-ripened wood; rich, lumpy loam and peat. Summer temp., 60° to 70°; winter, 50° to 60°.

B. grandifo'ra (large-flowered). 20. White. June. E. Ind. 1820.

— *longifo'lia* (long-leaved). 20. White. E. Ind. 1818.

BE'CIUM. (United to *Ocimum*.)

BED is a comprehensive word, applicable to the detached space on which any cultivated plants are grown. It is most correctly confined to small divisions,

purposely restricted in breadth for the convenience of hand-weeding, or other requisite culture, and, in the flower-garden, for the promotion of beauty. This involves the question of form, one of the most difficult that is submitted to the gardener, because few tastes agree as to their estimate of the beautiful. Under the head FLOWER-GARDEN we shall give a few general, and only general, observations upon this subject; and here will merely observe that, in making flower-beds, they should always be proportioned to the size of the plants which are to be their tenants; and that though, for large masses of shrubs and trees, we have seen rectangular forms so planted as to look solid and grand, yet that we believe no arrangement of dwarf-flowers would ever make a separate square or parallelogram bed of them otherwise than decidedly ugly.

BEDDING-IN is a mode of sowing seed. In this method, the ground being dug, and formed by alleys into beds, four or five feet wide, each alley being a spade's width or more between bed and bed, and the earth being drawn off the top of the bed with a rake or spade, half an inch or an inch deep into the alleys, the seed is then sown all over the surface of the bed; which being done, the earth in the alleys is immediately cast over the bed, again covering the seeds the same depth, and the surface is raked smooth.

The method of bedding-in sowing by sifting is sometimes practised for very small seeds of a more delicate nature, that require a very light covering of earth when sown. To bury them as shallow as possible, they are covered by sifting fine earth over them out of a wire-sieve.

BEDDING-OUT is removing plants from the pots in which they have been growing into the beds where they are intended to remain during the summer and autumn. The following is a list of flowers for bedding-out, arranged according to their colours, the first-named being the most dwarf:—*White*.—*Verbena pulchella*, *Lobelia erinus albus*, *Campanula pumila*, *Campanula Carpatia alba*, *Senecio elegans flore albo*, *White Ivy-leaved Geranium*, *White-flowered horse-shoe Geranium*, *Phlox omniflora*, *Double White Snapdragon*, *Oenothera taraxifolia*, *C. speciosa*, *Nierembergia calycina*, *Variegated sweet Alyssum*, *Calendula hybrida*,

White Clarkia, *Petunia nyctaginiflora*; of Verbenas, the Bride and White Perfection, and White *Salvia patens*. *Scarlet*.—Of Verbenas, *Boule de Feu*, *Inglefield Scarlet*, or *fulgens*, *Melindre's latifolia*, *Satellite*, and *Emperor of Scarlets*; of Geraniums, *Shrubland Scarlet*, *Tom Thumb*, *Improved Frogmore*, *Gem of Scarlets*, *Royalist*, and *Compactum*. *Purple*.—Of Verbenas, *Walton's Emma*, *Heloise*, *Venosa*, and *Sabina*; *Petunia phoenicea*, *Lobelia unidentata*, *Lantana Sellowii*, and *Phlox Drummondii*. *Pink*.—*Saponaria Calabrica*, *Silene Shaftsæ*, *Silene pendula*, *Silene compacta*; of Geraniums the *Pink Ivy-leaf*, *Mangle's variegated Pink*, *Pink Nosegay*, *Judy*, *Lucia rosea*, and *Diadematum*; *Anagallis carnea*; of Verbenas, *Miller's Favourite*, *Beauty Supreme*, *Duchess of Northumberland*, and *Standard of Perfection*. *Yellow*.—*Tagetes tenuifolia*, *Sanvitalia procumbens*; of *Calceolarias*, *Integrifolia*, *Rugosa*, *Kayii*, *Viscosissima*, *Corymbosa*, and *Amplexicaule*; *Orange African Marigold*, *Double Yellow French Marigold*, and *Coreopsis lanceolata*. *Blue*.—*Lobelia ramosa*, *Cineraria amelloides*, *Salvia chamædrioides*, and *Isotoma axillaris*.

BEDEGUAR. See CYNIPS ROSE.

BEDFORDIA. (Named in honour of the Duke of Bedford. Nat. ord., *Compositæ* [*Asteraceæ*]. Linn., 19-Syngenesia 1-Æqualis. Allied to *Cacalia*.)

Greenhouse evergreen shrub. Cuttings a little dried before inserting them, in rough, sandy soil; sand, peat, loam, and brick-rubbish, in equal proportions. Summer temp., 65° to 70°; winter, 40° to 45°; and almost dry.

B. salicina (willow-like). Yellow. April. 1820.

BEE. (*Apis*.) All the species of this insect are friendly to the gardener; for they all aid in impregnating his flowers, many of which, without their aid, would fall unproductive of either fruit or seed. At the same time they are as often injurious, by causing cross impregnations, and actually injuring flowers in their efforts to get at the honey. The honey-bee (*A. mellifica*) is the most active in this operation; but the humble-bee (*Bombus apis*), and others of the robust species, visit flowers in rough weather, when the honey-bee will not venture from its hive.

BEECH. *Fagus*.

BEE. There are two sections of this vegetable cultivated by gardeners.

1. For the leaves to boil like spinach, and the stalks of the leaves like sea-kale.

Brazilian Beet (*Be'ta Brazilie'nsis*), with very large green leaves. Thick-leaved Beet (*B. ci'clu*), of which there are these varieties:—1. Green-leaved, small-rooted. 2. White-veined, or silver. 3. Golden-veined. 4. Red-veined. The silver is the finest, and, when blanched as the chard, nearly equals asparagus. The leaves of all are boiled like spinach, and the foot-stalks peeled and used as sea-kale.

2. Red Beet (*B. vulga'ris*).—Nine varieties occur of this; but the yellow and white-rooted, not meriting cultivation, are here omitted. The others are:—1. Large-rooted. 2. Long-rooted. 3. Dwarf-topped. 4. Turnip-rooted. 5. Small. 6. Castlenaudari. 7. Green-topped. Of these, No. 4 is best for an early crop, and No. 6 for the main crop, if obtained genuine. There are many sub-varieties, but scarcely distinguishable from each other. For table use, the object is to obtain moderate-sized and dark crimson roots.

Use.—The Red Beet, after being cooked, is used sliced in salads, or alone with an acid dressing. It is much better baked than boiled.

Soil and Situation.—Beet requires a rich, deep, open soil. Its richness should rather rise from previous application, than the addition of manure at the time of sowing; and, to effect this, the compartment intended for the growth of these vegetables is advantageously prepared as directed for Celery. On the soil depend the sweetness and tenderness for which which they are estimated; and it may be remarked, that on poor, light soils, or heavy ones, the best sorts will taste earthy. The situation should be open; but it is of advantage to have the bed shaded from the meridian sun in summer. We have always found it beneficial to dig the ground two spades deep for these deep-rooting vegetables, and to turn in the whole of the manure intended to be applied with the bottom-spit, so as to bury it ten or twelve inches within the ground. Salt is a beneficial application to this crop; one reason for which undoubtedly is, the Beet being a native of the sea-shore.

Time and mode of sowing.—Sow from the close of February until the beginning of April, it being borne in mind that the seed must not be inserted until the severe frosts are over, which inevit-

ably destroy the seedlings when young. The best time for inserting the main crop of red Beet-root for winter supply is early in April. The Brazilian and Thick-leaved Beets may be sown at the same time for supply in summer; and, at the beginning of July or August, a successional crop of these may be sown for supply in the winter and following spring.

The seed is best sown in drills, a foot asunder, and an inch deep; or by dibble, at the same distance each way, and at a similar depth, two or three seeds being put in each hole. The Brazil Beet requires eighteen inches space.

During the early stages of growth, the beds, which, for the convenience of cultivation, should not be more than four feet wide, must be looked over occasionally, and the largest of the weeds cleared by hand. In the course of May, according to the advanced state of growth, the plants must be cleared thoroughly of weeds, both by hand and small hoeing; the Red Beet thinned to ten or twelve inches apart, and the White to eight or ten. The plants of this last variety which are removed may be transplanted into rows at a similar distance. Moist weather is to be preferred for performing this, otherwise the plants must be watered occasionally until they have taken root. They must be frequently hoed, and kept clear of weeds throughout the summer.

It is a great improvement to earth up the stalks of the White Beet, in the same manner as Celery, when they are intended to be peeled, and eaten as asparagus. No vegetable is more benefited by the application of liquid-manure than the White and Brazil Beets.

Taking up the Red Beet.—In October the Beet-root may be taken up for use as wanted, but not entirely, for preservation during the winter, until November, or the beginning of December, if the weather continues open; then to be buried in sand, in alternate layers, under shelter. Before storing, the leaves and fibrous roots must be trimmed off, but the main root not wounded, and a dry day selected for performing it. Beet-root may be kept exceedingly well if stacked up neatly, sloping to a point, against a north wall, or other cool place, upon a dry bottom, and buried with sifted coal-ashes. The thickness of this covering must depend upon the weather.

Gathering from the Green and White Beet.—In gathering from these, the largest outside leaves should be first taken, and the inner left to increase in size, when the same selection must be continued; but, at the same time, it must be remembered that they are to be used whilst perfectly green and vigorous, otherwise they are tough and worthless.

To obtain seed.—Some roots must be left where grown, giving them the protection of some litter in very severe weather, if unaccompanied with snow; or, if this is neglected, some of the finest roots that have been stored in sand, and have not had the leaves cut away close, may be planted in February or March. Each species and variety must be kept as far away from others as possible, and the plants set at least two feet from each other. They flower in August, and ripen their seed at the close of September. Seed of the previous year is always to be preferred for sowing; but it will succeed, if carefully preserved, when two years old.

BEFARIA. See BEJA'RIA.

BEGO'NIA. (After *M. Begon*, a French patron of botany. Nat. ord., *Bignoniads* [*Bignoniaceæ*]. Linn., 21-Monæcia 9-Polyandria.)

Stove evergreen shrubs, except where otherwise specified. Many freely by seeds, sown as soon as ripe, or in the following spring; cuttings in spring or summer, after drying their base, inserted in sandy soil, in a little heat. The tuberous kinds are easily propagated in abundance by division, when beginning to grow, and they will stand more cold in winter by 5° or 10° than the others; peat and sandy loam, and thoroughly-decayed dung. Summer temp., 60° to 70°; winter, 48° to 55°.

B. acerifolia (maple-leaved). 3. Whitish. Brazil. 1829.

—*a'cida* (acid). 1. White. Brazil. 1847.

—*acumina'ta* (long-pointed-leaved). 1. White. July. Jamaica. 1798.

—*acutifo'lia* (abrupt-pointed-leaved). 1. White. August. W. Ind. 1816.

—*a'lbo-cocci'nea* (white and scarlet-flowered). 1. White and scarlet. E. Ind. 1844. Stove herbaceous perennial.

—*a'ptera* (wingless). 3. White. July. Stove herbaceous perennial.

—*argyrosti'gma* (silver-spotted). 3. White. August. Brazil. 1819.

—*auranti'aca* (orange-coloured). Orange. India.

—*auriculato'rme* (ear-shaped). White. Guatemala. 1850.

—*Barker'i* (Barker's). 4. White. January. Mexico. 1837. Greenhouse herbaceous perennial.

—*biserra'ta* (saw-tooth-leaved). 2. Pale pink. June. Guatemala. 1847.

—*bulbil'fera* (bulb-bearing). 1. Whitish-pink. July. Peru. 1827. Greenhouse herbaceous perennial.

- B. castanefolia* (chestnut-leaved). 2. Pink. February. Brazil. 1838.
- *cinnabarina* (vermillion-coloured). Orange, scarlet. Bolivia. 1848. Stove herbaceous perennial.
- *coecinea* (scarlet-flowered). 3. Scarlet. April. Brazil. 1842.
- *crassicaulis* (thick-stalked). 3. Whitish-pink. February. Guatemala. 1842.
- *eculata* (hooded). 3. White. Brazil.
- *digita* (finger-leaved). 3. White. June. Brazil. Stove herbaceous perennial.
- *dipetala* (two-petaled). 3. Pink. July. Bombay. 1827.
- *diptera* (two-winged). 1. White. July. Cape of Good Hope. 1822.
- *discolor* (two-coloured). 3. White. May. China. 1804.
- *diversifolia* (various-leaved). 1. Pink. July. Mexico. 1829. Stove herbaceous perennial.
- *Dregei* (Drege's). 2. White. July. Cape of Good Hope. 1838.
- *dubia* (doubtful). 1. White. July. Brazil. 1818. Stove herbaceous perennial.
- *fagifolia* (beech-leaved). 3. White. April. Brazil. 1838.
- *Fischeri* (Fischer's). 2. June. S. Amer. 1835.
- *fuchsoides* (fuchsia-like). 5. Scarlet. December. North Grenada. 1844.
- *geraniifolia* (geranium-leaved). 2. Whitish-red. September. Lima. 1833. Stove tuberous-rooted.
- *heracleifolia* (heracleum-leaved). 2. 1831. Stove tuberous-rooted.
- *radiata* (rayed). 2. Pale pink. Mexico.
- *Hernandiifolia* (Hernandia-leaved). Rose. June. Java.
- *hirsuta* (shaggy-leaved). 1. White. June. W. Ind. 1789. Stove biennial.
- *hirtella* (small-haired). 1. White. September. 1824. Stove herbaceous perennial.
- *Hookeri* (Sir W. Hooker's). 2. Pink. Mexico. 1827.
- *homonyma* (ambiguous). 3. White. June. Brazil.
- *humilis* (humble). 3. White. September. W. Ind. 1788. Stove biennial.
- *hydrocotylifolia* (hydrocotyle-leaved). 3. Pink. June. S. Amer. 1843. Stove herbaceous perennial.
- *hybrida* (hybrid). 1½. Pink. March.
- *incana* (hoary). White. April. Mexico. 1838. Stove herbaceous perennial.
- *incarnata* (flesh-coloured). 2. Pink. Brazil. 1829.
- *insignis* (striking). Pink. December. S. Amer. 1826.
- *laurina* (laurel-leaved). 3. Pink. July. Stove herbaceous perennial.
- *Lindleyana* (Dr. Lindley's). 3. White. June. Guatemala.
- *longipes* (long-flower-stalked). 3½. White. March. Mexico. 1828.
- *lucida* (shining). 1. White. August. W. Ind. 1816.
- *luxurians* (luxuriant). Bluish-white. S. Amer.
- *macrophylla* (large-leaved). 3. White. July. Jamaica. 1793.
- *manicata* (collared). 3. Pale pink. April. Brazil. Stove herbaceous perennial.
- *Martiana* (Martin's). 3. Pink. July. Brazil. 1829. Stove tuberous-rooted.
- *Meyeri* (Meyer's). 3. White. February. Brazil. 1838.
- B. muricata* (mureted). 3. White. September. Brazil. Stove herbaceous perennial.
- *multibulbosa* (many-bulbed). 2. White. Brazil. 1830. Stove tuberous-rooted.
- *Natalensis* (Natal). White and rose. November. Natal.
- *nitida* (shining-leaved). 1½. Pink. August. Jamaica. 1777.
- *octopetala* (eight-petaled). 2. Greenish-white. October. Peru. 1835. Stove tuberous-rooted.
- *odora* (fragrant). 1½. White. September. 1824. Stove herbaceous perennial.
- *palmeta* (hand-shaped). 1. White. August. Nepal. 1819.
- *papillosa* (pimpled). 3. Pink. July. Brazil. 1826.
- *parvifolia* (small-leaved). 3. White. May. Cape of Good Hope. 1836.
- *patula* (spreading). 1. White. June. W. Ind. 1818.
- *peltifolia* (shield-leaved). 3. White. 1816. Stove herbaceous perennial.
- *pentaphylla* (five-leaved). 3. White. July. Brazil.
- *picta* (painted). 3. Pink. August. Nepal. 1818. Stove tuberous-rooted.
- *platanifolia* (plane-tree-leaved). 10. Pink. September. Brazil. 1829.
- *pulchella* (neat). 3. White. July. Brazil. 1823. Stove annual.
- *punctata* (spotted). Rose. May. Mexico. 1839.
- *ramentacea* (scaly-stemmed). 1. Whitish-blush. June. Brazil. 1830. Stove herbaceous perennial.
- *reniformis* (kidney-shaped). 1. White. July. Brazil. 1818.
- *rubricaulis* (red-stemmed). 1½. Blush.
- *rubro-venia* (red-veined). 3. White, red. Bootan. 1852.
- *rupestris* (rock). 2. Pink. April. Brazil. Stove herbaceous perennial.
- *sanguinea* (blood-red-leaved). 3. White. June. Brazil. 1829.
- *Sellowii* (Sellow's). White. September. Stove herbaceous perennial.
- *semperfoliens* (ever-blooming). Pink. Brazil. 1829.
- *sinuata* (wandyked). 2. White. June. Brazil. 1836.
- *spatulata* (spatulate). 1½. White. September. W. Ind. 1819. Stove herbaceous perennial.
- *stigma* (spotted-leaved). 1½. White. Stove herbaceous perennial.
- *suaveolens* (sweet-scented). 1. White. August. W. Ind. 1816.
- *Thwaitesii* (Thwaites'). 6. White and pink. Ceylon. 1852.
- *tuberosa* (tuberous). 3. White. August. Amboyna. 1810. Stove tuberous-rooted.
- *undulata* (waved). 2. White. July. Brazil. 1825.
- *urophylla* (tail-leaved). White. March.
- *vitifolia* (vine-leaved). 3. White. April. Brazil.
- *xanthia* (yellow-flowered, or elephant-ear). Yellow. July. Bootan. 1850.
- *zebrina* (zebra-striped). 3. Pink. Brazil. Stove herbaceous perennial.

BEJA'RIA. (Named after M. Bejar, a Spanish botanist. Nat. ord., *Heathworts* [Ericaceæ]. Linn., 11—*Dodecandria* 1—*Monogynia*.)

Greenhouse evergreen shrubs, except where otherwise specified. Cuttings of young wood, firm at the base; loam and peat.

B. æstuans (glowing). 12. Rose. Peru. 1846.
— *cinnamo'nea* (cinnamon). Peru. 1847.

— *coarctata* (close-headed). 5. Purple. Peru. 1847.

— *glau'ca* (milky-green). 3. Purple. June. New Granada. 1826. Stove evergreen.

— *ledifolia* (ledum-leaved). 5. May. 1847.

— *racemo'sa* (raceme-flowered). 4. Purple. June. Florida. 1810.

BELLADONNA LILY. *Amary'llis bella-to'na*.

BELLEISLE CRESS. *Barba'rea præ'cox*. See AMERICAN CRESS.

BELLEVA'IA. (Named after P. R. Belleval, a French botanist. Nat. ord., *Lilyworts* [Liliacæ]. Linn., 6-*Hexandria* 1-*Monogynia*. Allied to the Squills.)

Hardy bulbs; offsets; common garden-soil.

B. operculata (lid-covered). 1. White. May. Italy. 1596.

— *Syri'aca* (Syrian). Orange, blue. May. Syria. 1844.

BELL-FLOWER. *Campanula*.

BELL-GLASS is so called from its usual form being that of a bell. It is formed of one entire piece, and of common bottle-glass, when intended for sheltering cauliflowers, &c., in the open borders; but of white, or very pale-green glass, for preserving moisture to cuttings. Formerly they were made with a top almost flat, whence, to prevent drip upon the cuttings, &c., it became necessary to wipe them frequently. They are now much improved by being cone-topped, because the moisture condensed consequently trickles down into the soil.

BELLIDIA'STRUM. (From *bellis*, a daisy, and *astrum*, a star; being star-like. Nat. ord., *Composites* [Asteracæ]. Linn., 19-*Syngenesia* 2-*Superflua*. Allied to Aster.)

A hardy herbaceous perennial; divisions; sandy loam.

B. Micheli'i (Micheli's). 1. White. June. Austria. 1870.

BE'LLIS. The Daisy. (From *bellus*, pretty; referring to the flowers. Nat. ord., *Composites* [Asteracæ]. Linn., 19-*Syngenesia* 2-*Superflua*.)

All the cultivated kinds are hardy herbaceous perennials. Seeds, but chiefly division of the roots; common soil.

B. hybrida (hybrid). $\frac{1}{2}$. White. April. Italy. 1824.

— *integrifolia* (entire-leaved). $\frac{1}{2}$. White, pink. July. Texas. 1801.

— *perennis* (perennial). $\frac{1}{2}$. White. June. Britain. This is the common Daisy.

— *fistulo'sa* (piped, double-quilled). $\frac{1}{2}$. Red. June.

B. perennis hortensis (garden, large-double). $\frac{1}{2}$. Red. June.

— *proli'fera* (proliferous). $\frac{1}{2}$. Striped. June. Commonly called *The Hen and Chickens*.

— *sybe'stris* (wood). $\frac{3}{4}$. White. June. Portugal. 1797.

It is curious that the daisy is not more cultivated and crossed by florists and amateurs. It is quite as capable of improvement as the chrysanthemum. The continental florists have not treated it with similar neglect; and M. Van Houtte, of Ghent, has more than twenty distinct varieties in his catalogue—white, pink, and variegated; quilled, red-disked, and double.

BE'LLIUM. (From *bellis*, a daisy; the flowers being like the daisy. Nat. ord., *Composites* [Asteracæ]. Linn., 19-*Syngenesia* 2-*Superflua*.)

Seeds and divisions; sandy soil, and a little peat.

B. bellidiod'nes (daisy-like). $\frac{1}{2}$. White. July. Italy. 1796. Hardy annual.

— *crassifolium* (thick-leaved). $\frac{1}{2}$. Whitish-yellow. June. Sardinia. 1831. Half-hardy perennial.

— *interme'dium* (intermediate). $\frac{1}{2}$. White. August. Hardy herbaceous perennial.

— *minu'tum* (minute). 1. White. August. Levant. 1772. Hardy herbaceous perennial.

BELLOWS are employed for fumigating, differing only from the common bellows by having a receptacle for ignited tobacco in the pipe of its nozzle, through which the air, being gently forced in the usual way, propels the smoke in any desired direction, where the insects to be destroyed appear. *Brown's Fumigator* is superior to any bellows for such purposes.

BELOPE'NONE. (From *belos*, an arrow, and *perone*, a band, or strap; in reference to the arrow-shaped connective. Nat. ord., *Acanthads* [Acanthacæ]. Linn., 2-*Diandria* 1-*Monogynia*. Allied to *Justicia*.)

Stove evergreen shrub. Cuttings; light loam. Summer temp., 60° to 70°; winter, 45° to 55°.

B. oblongata (oblong-leaved). 3. Rosy-purple. September. Brazil. 1832.

BENDING-DOWN. This term is chiefly applied to the bending of the annual or other shoots of fruit-trees, for the purpose of making them fruitful, or to make them assume some desired form. Balls of clay have been fastened to the extremities of the shoots, to weigh them down into the position required; but the most desirable mode is by fastening them by a string to pegs driven into the ground.

BENGAL QUINCE. *Ægle ma'melos*.

BENJAMIN-TREE. *Ficus Benjamin'a* and *Lau'rus Be'nzoin*.

BENTHA'MIA. (Named after Mr. Ben-

tham, a distinguished English botanist. Nat. ord., *Cornels* [Cornaceæ]. Linn., 4-Tetrandria 1-Monogynia.)

Hardy evergreen shrubs. Layers; seeds where procurable; loam; does in a sheltered place.

B. fragifera (strawberry-fruited). 10. Yellowish-red. August. Nepaul. 1825.
— *Japo'nica* (Japanese). Japan. 1847.

It is doubtful whether *B. fragifera* will endure our winters unprotected, except in our southern counties. It ripens its fruit against a wall in Devonshire. It is like a raspberry, and ornamental, but not eatable.

BERA'RDIA. (Named after *M. Berard*, a botanist of Grenoble. Nat. ord., *Bruniads* [Bruniaceæ]. Linn., 5-Pentandria 1-Monogynia.)

Greenhouse evergreen shrubs, from Cape of Good Hope. Cuttings; divisions; common soil.
B. paleacea (chaffy). 2. White. July. 1791.
— *phylicoides* (phylica-like). 2. White. July. 1805.

BERBE'RIS. The Barberr'y. (From *berberys*, its Arabian name. Nat. ord., *Berberids* [Berberidaceæ]. Linn., 6-Hexandria 1-Monogynia.)

We have reunited with this genus all the species separated from it, and called *Mahonias*. Seeds, sown in spring; cuttings root freely if planted early in autumn; and suckers are abundantly produced. Grafting is resorted to with rare species. Deep, sandy soil. All are hardy, except where otherwise specified. See BAR-BERRY.

EVERGREENS.

B. actinacantha (ray-spined). 3. Yellow. June. Straits of Magellan.
— *angulosa* (angular). Yellow. Northern India. 1844.
— *aquifolia* (prickly-leaved). 6. Yellow. April. N. Amer. 1823.
— *aristata* (awned). 6. Yellow. April. Nepaul. 1820.
— *asiatica* (Asiatic). 4. Yellow. Nepaul. 1823.
— *Aurahuacensis* (Aurahua). Golden-yellow. Grenada. 1847.
— *Bealei planifolia* (Mr. Beale's Chinese, flat-leaved). Yellow. China.
— *boxifolia* (box-leaved). 3. Yellow. Straits of Magellan. 1827. Half-hardy.
— *concinna* (neat). 2. Yellow. Sikkim Himalaya.
— *Darwinii* (Darwin's). 2. Orange. May. South Chili. 1849.
— *dealbata* (whitened-leaved). 5. Yellow. May. Mexico. 1833.
— *dulcis* (sweet-fruited). 8. Yellow. March. Straits of Magellan. 1830.
— *emarginata* (notch-petaled). 3. Yellow. May. Siberia. 1790.
— *empetrifolia* (empetrum-leaved). 2. Yellow. May. Straits of Magellan. 1827. Half-hardy.
— *fuscularis* (bundle-flowered). 8. Yellow. April. California. 1820.
— *Fortunei* (Fortune's). Yellow. July. China. 1846.
— *heterophylla* (various-leaved). 4. Yellow. May. Straits of Magellan. 1805.

B. hypoleuca (white-beneath-leaved). 5. Pale. yellow. May. Northern India. 1840.
— *ilicifolia* (holly-leaved). 4. Yellow. July. Terra del Fuego. 1791.
— *inermis* (unarmed). 2. Yellow. Straits of Magellan. 1827. Half-hardy.
— *macrophylla* (large-leaved). Yellow. Japan. 1847.
— *mitis* (gentle-thornless). Yellow. N. Amer. 1834.
— *nervosa* (large-nerved). Yellow. June. N. Amer. 1804.
— *pellida* (pale). Yellow. April. S. Amer. 1844. Greenhouse.
— *Pangharanghensis* (Pangharang). 1848. Half-hardy.
— *parviflora* (small-flowered). 3. Yellow. May. S. Amer. 1846. Greenhouse.
— *repens* (creeping-rooted). 2. Yellow. April. N. Amer. 1822.
— *ruscifolia* (rhus-leaved). 5. Yellow. May. Buenos Ayres. 1823. Greenhouse.
— *tenuifolia* (thin-leaved). Vera Cruz. 1836.
— *trifolia* (three-leaved). Yellow. May. Mexico. 1839. Greenhouse.
— *virgata* (twiggy). Yellow. Peru. 1836.
— *Wallichiana* (Wallich's). 4. Yellow. May. Nepaul. 1820. Half-hardy.

DECIDUOUS.

B. Canadensis (Canadian). 5. Yellow. May. Canada. 1759.
— *Caroliniana* (Carolina). Yellow. June. N. Amer. 1828.
— *Conaria* (Conaria). Yellow. June. Nepaul. 1841.
— *coriaria* (tanner's). 10. Yellow. May. Himalayas. 1835.
— *cratægina* (cratægus-like). 6. Yellow. May. Asia Minor. 1829.
— *Cretica* (Cretan). 3. Yellow. April. Candia. 1759.
— *seratifolia* (saw-edged-leaved). Yellow. May. Candia. 1759.
— *Daurica* (Daurian). 8. Yellow. May. Dauria. 1818.
— *floribunda* (many-flowered). 10. Yellow. June. Nepaul.
— *Iberica* (Iberian). 5. Yellow. May. Iberia. 1818.
— *Provincialis* (Provence). 8. Yellow. June. France. 1821.
— *Sibirica* (Siberian). 2. Yellow. July. Siberia. 1790.
— *Sinensis* (Chinese). 4. Yellow. May. China. 1815.
— *umbellata* (umbellate-flowered). 6. Yellow. Nepaul. 1842.
— *vulgaris* (common). 10. Yellow. April. England.
— *albha* (white-fruited). 8. Yellow. April.
— *asperma* (seedless). 6. Yellow. April. Europe.
— *dulcis* (sweet-red-fruited). Yellow. May. Austria. Evergreen.
— *foliis purpureis* (purple-leaved). 10. Yellow. May. 1841.
— *glauca* (milky-green-leaved). 10. Yellow. May.
— *longifolia* (long-leaved). 10. Yellow. May.
— *lutea* (yellow-fruited). 10. Yellow. May. Europe.
— *mitis* (gentle-thornless). 10. Yellow. May.
— *nigra* (black-fruited). 10. Yellow. May. Europe.

- B. vulgaris purpurea* (purple-fruited). 10. Yellow. May. Europe.
 — *violacea* (violet-fruited). 10. Yellow. May. Europe.

BERCHE'MIA. (Named after *M. Berchem*, a French botanist. Nat. ord., *Rhamnads* [*Rhamnaceæ*]. Linn., 5-*Pentandria* 1-*Monogynia*.)

Seeds, cuttings, and divisions; sandy loam and peat. All twiners. Greenhouse treatment for the two species first named. *B. volubilis* is hardy.

B. floribunda (many-flowered). White. Nepal. 1827.

- *lineata* (lined). 8. Green. June. China. 1804.
 — *volubilis* (twining). 15. Green. June. Carolina. 1714.

BERGE'RA. (Named after *M. Berger*, a botanist at Kiel. Nat. ord., *Citron-worts* [*Aurantiaceæ*]. Linn., 10-*Decandria* 1-*Monogynia*.)

Stove evergreen shrubs. Layers and cuttings; sandy loam. Summer temp., 60° to 70°; winter, 55° to 60°.

- B. integrifolia* (entire-leaved). 4. White. June. W. Ind. 1823.
 — *Königii* (König's). 3. White. June. E. Ind. 1820.

BE'RGIA. (Named after *P. J. Bergius*, *M.D.* Nat. ord., *Water-Peppers* [*Elatinaceæ*]. Linn., 10-*Decandria* 4-*Pentagynia*.)

Hardy annual. Seeds; sandy soil.

- B. verticillata* (whorled). 1. White and red. June. Egypt. 1820.

BERKE'YA. (Named after *M. J. L. de Berkhey*, a Dutch botanist. Nat. ord., *Composites* [*Asteraceæ*]. Linn., 19-*Syngenesia* 3-*Frustranea*. Allied to *Gorteria*.)

All from the Cape of Good Hope, and greenhouse evergreens, except where otherwise specified. Biennial species by seed, as a tender annual; herbaceous ones by seed, but chiefly divisions, in spring; evergreens by cuttings under a glass, in sandy soil; sandy loam. Winter temp., 40° to 50°.

- B. cernua* (drooping-flowered). 1. Yellow. June. 1774. Stove biennial.
 — *cuneata* (wedge-leaved). 2. Yellow. June. 1812.
 — *cynaroides* (artichoke-like). 1. Yellow. June. 1789. Greenhouse herbaceous.
 — *grandiflora* (large-flowered). 2. Yellow. July. 1812.
 — *inca'na* (hoary). 2. Yellow. July. 1793.
 — *obovata* (reversed-egg-leaved). 2. Yellow. July. 1794.
 — *palmata* (hand-leaved). 3. Yellow. July. 1800.
 — *pectinata* (comb-leaved). 2. Yellow. August. 1818.
 — *spinosissima* (most spiny). 2. Yellow. July. 1821. Greenhouse herbaceous.
 — *uniflora* (one-flowered). 3. Yellow. July. 1815.

BERMUDA CEDAR. *Juni'perus Bermuda'na*.

BERTERO'A. (Named after *C. J. Ber-*

tero, a friend of Decandolle's. Nat. ord., *Crucifers* [*Brassicaceæ*]. Linn., 15-*Tetradynamia*. Allied to *Arabis*.)

Biennial and perennial from seed and cuttings; the shrubby and rather more tender species from cuttings under a hand-glass, in summer; loamy soil.

- B. inca'na* (hoary). 2. White. July. Europe. 1640. Hardy biennial.
 — *mutabilis* (changeable). 2. White, pink. July. Levant. 1802. Hardy herbaceous perennial.
 — *obliqua* (unequal-sided-leaved). 1. White. July. Sicily. 1823.

BERTHOLLE'TIA. Brazil Nut. (Named after *L. O. Berthollet*, a distinguished chemist. Nat. ord., *Lecyths* [*Lecythidaceæ*]. Linn., 13-*Polyandria* 1-*Monogynia*.)

The Brazilian nuts of the shops are the produce of this ornamental stove evergreen tree. Cuttings, ripened wood, in sand, and in bottom-heat; peat and loam. Summer temp., 60° to 70°; winter, 55° to 60°.

- B. excel'sa* (tall). 100. Para.

BERZE'LIA. (Named after *Berzelius*, the celebrated chemist. Nat. ord., *Bruniads* [*Bruniaceæ*]. Linn., 5-*Pentandria* 1-*Monogynia*.)

Greenhouse evergreen shrubs, from the Cape of Good Hope. Cuttings of half-ripened wood in sand, under a glass; loam and peat. Winter temp., 40° to 45°.

- B. abrotanoides* (southernwood-like). 1½. White. June. 1787.

- *lanigiosa* (woolly). 3. White. July. 1774.

BESLE'RIA. (Named after *Besler*, an apothecary at Nuremberg. Nat. ord., *Gesnerworts* [*Gesneraceæ*]. Linn., 14-*Didynamia* 2-*Angiospermia*. Allied to *Gesnera*.)

Stove evergreen under-shrubs, except where otherwise specified. Cuttings, slightly dried, and placed in sweet bottom-heat, in rough, sandy soil; peat and loam. Summer temp., 60° to 80°; winter, 50° to 60°.

- B. coccinea* (scarlet-berried). 3. Yellow. Guiana. 1819.
 — *cristata* (crested). 3. Yellow. June. W. Ind. 1739. Stove evergreen climber.
 — *grandifolia* (large-leaved). 3. Yellow. August. Brazil. 1823.
 — *incarnata* (flesh-coloured-berried). 3. Yellow. Guiana. 1820. Stove herbaceous perennial.
 — *lutea* (yellow-flowered). 3. Yellow. July. Guiana. 1739.
 — *mollis* (soft). 3. Yellow. S. Amer. 1823.
 — *pulchella* (neat). 3. Yellow. August. Trinidad. 1806. Stove evergreen climber.
 — *tigrina* (tiger-spotted). 4. White, crimson. December. Caraccas. 1853.
 — *violacea* (purple-berried). 6. Yellow. Guiana. 1824. Stove evergreen climber.

BESOM, or BROOM, received its second name from being often made of the broom-

plant; but the best, both for flexibility and durability, are made of the ling, or heath. Birch-brooms are the most common, and are those to which the name besom applies; *beso*, in the Armorican language, being the birch. But whatever the material, they will endure much longer if soaked in water for some time before using. If kept constantly in water they would be still less brittle. Where walks are liable to become mossy, a broom made of wire is frequently employed for sweeping them. If the wire be iron, it ought to be well dried and dipped in oil before and after being used, or it is soon destroyed by the rust.

BE'SSERA. (Named after *Dr. Besser*, professor of botany at Brody. Nat. ord., *Lilyworts* [Liliaceæ]. Linn., 6-*Hexandria* 1-*Monogynia*. Elegant little Mexican bulbs, allied to the Squills.)

Offsets; sandy peat; kept dry and cool, but secure from frost when not growing; kept moist when growing and flowering. They require a cold pit or greenhouse.

B. elegans (elegant). 2. Scarlet. September. Mexico.

— *fastuosa* (hollow-stalked). 1. Purple. September. Mexico. 1831.

— *Herbertii* (Dr. Herbert's). Purple and white. September. Mexico. 1846.

BETA. Beet Root. (From *bett*, the Celtic word for red; in reference to the red colour of the beet. Nat. ord., *Chenopods* [Chenopodiaceæ]. Linn., 5-*Pentandria* 2-*Digynia*.)

Hardy biennials, except where otherwise described. Seeds in March or April; deep soil. See **BET.**

B. Cylca (Sicilian white-beet). 6. Green. August. Portugal. 1670.

— *cristata* (curled). 6. Green. August. South of Europe. 1800.

— *macrorrhiza* (long-rooted). 6. Green. August. Caucasus. 1820.

— *maritima* (sea). 1. Green. August. Britain.

— *trigyna* (three-styled). 3. White. July. Hungary. 1796. Hardy herbaceous perennial.

— *vulgaris* (common red-beet). 4. Green. August. Europe. 1548.

— *lutæa* (yellow-rooted). 4. Green. August. South of Europe.

— *rubra* (red-rooted). 4. Green. August. South of Europe.

— *viridis* (green). 4. Green. August. South of Europe.

BETCKEA. (Named after *M. Betcke*, a botanist. Nat. ord., *Valerianworts* [Valerianaceæ]. Linn., 3-*Triandria* 1-*Monogynia*.)

For all practical purposes, they may be taken as a common Valerian. Hardy annuals. Seeds in warm situations, in middle of May; or, better,

in a slight hotbed, in the middle of March, and transplanted into common garden-beds.

B. major (larger). 14. Rose. August. California. 1836.

— *samolifolia* (samolus-leaved). 1. Rose. July. Chili. 1835.

BETLE NUT. *Pi'per Betle*.

BETO'NICA. Betony. (This genus, named after the Celtic title, *Bentonic*, is now united to *Stachys*.)

BET'ONY. *Sta'chys* and *Teu'crium betonicum*.

BET'ULA. Birch. (From its Celtic name, *betu*. Nat. ord., *Birchworts* [Betulaceæ]. Linn., 21-*Monæcia* 4-*Tetrandria*.)

Hardy deciduous trees and shrubs, except where otherwise specified. Seeds sown as soon as ripe, or kept dry, and sown in the April following, in fine soil, and scarcely more than covered; deep, dry soil suits them best. Shrubs and particular species by suckers and grafting. The flowers of all are inconspicuous, having no petals.

B. alba (common white). 40. April. Britain.

— *Dalecarlica* (Dalecarlian). 40. May. Europe.

— *foliis variegatis* (variegated-leaved). May.

— *macrocarpa* (large-fruited). 40. June. Europe.

— *pendula* (pendulous). April. Britain.

— *Po'ntica* (Pontic). 70. May. Turkey.

— *urticifolia* (nettle-leaved). 40. May.

— *verruco'sa* (warty). 40. April. Britain.

— *Bhojpattra* (Bhojpattra). 50. May. Himalayas. 1840.

— *carpinifolia* (horn-beam-leaved). 50. July. N. Amer. 1759. Hardy evergreen.

— *Daurica* (Daurian). 30. July. Siberia. 1785.

— *parvifolia* (small-leaved). July. Siberia.

— *excelsa* (tall). 60. July. N. Amer. 1767.

— *fruticosa* (shrubby). 6. June. Siberia. 1818.

— *glandulosa* (glanded). May. N. Amer. 1816.

— *grandis* (great). N. Amer. 1834.

— *lanuosa* (woolly). 70. July. N. Amer. 1817.

— *lenta* (pliant). 50. July. N. Amer. 1759.

— *lutæa* (yellow). 20. May. N. Amer.

— *molis* (soft). E. Ind. 1840.

— *na'na* (smooth-dwarf). 4. May. N. Amer.

— *macrophylla* (large-leaved). 6. May. Switzerland. 1819.

— *stricta* (upright). May.

— *nigra* (black). 60. July. N. Amer. 1786.

— *ovata* (egg-leaved). 6. May. Hungary. 1820.

— *palle'scens* (palish). 6.

— *papyracea* (paper). 50. June. N. Amer. 1750.

— *fulsca* (blackish-brown). May. Carolina.

— *platyphylla* (broad-leaved). 50. June. Carolina.

— *trichoclada* (hairy-twigged). June. Carolina.

— *pendula* (pendulous). 40. June. Britain.

— *Po'ntica* (Pontic). 12. May. Turkey. Hardy evergreen.

— *populifolia* (poplar-leaved). 30. July. N. Amer. 1750. Hardy evergreen.

— *laciniata* (cut-leaved). 30. July.

— *pendula* (pendulous). July.

— *pubescens* (downy). 30. June. Germany. 1812.

— *pubila* (hairy-dwarf). 6. May. N. Amer. 1762.

— *rubra* (red). 60. July. Canada.

— *Scopolis* (Scopoli's). 6.

— *tristis* (sad). 10. May. Kamtschatka.

BIBIO MARCI. St. Mark's Fly. Mr. Curtis says:—"The larvæ, or grubs, of this insect generally live, in large groups of a hundred or more, in strawberry-beds, vine-borders, flower-pots, and similar undisturbed spots, feeding upon the roots, and sometimes destroying the entire plant. Bouché says they completely demolished his bed of Ranunculuses for several successive years, by eating up the tubers. The larva is dark brown, somewhat cylindrical, the belly flattened, moderately broad, and nearly linear; the head is comparatively small, deep brown, and very shining. It changes to a chrysalis, generally, towards the end of March. This is of a pale ochreous colour, the head being brightest. The female lays her eggs in the earth, and in the dung of horses and cows, in May. They do not hatch until August."

BIDENS. (From *bis*, twice, and *dens*, a tooth; in reference to the seed. Nat. ord., *Compositæ* [Asteracæ]. Linn., 19-*Syngenesia* 1-*Æqualis*. Allied to *Coreopsis*.)

Hardy ones may be grown in the common border. The others are scarcely worth cultivating; but we have named the best. The annuals and biennials from seed, and the perennials by divisions and suckers. All hardy, except when otherwise specified.

- B. arguta* (arguta). Yellow. June. Mexico. 1825. Herbaceous perennial.
- *Berteriana* (Berter's). 3. Yellow. May. Porto Rico. 1787. Stove herbaceous perennial.
- *bipinnata* (twice-leafleted). 2. Yellow. July. N. Amer. 1697. Annual.
- *coronata* (crowned). Yellow. August. 1829. Biennial.
- *grandiflora* (large-flowered). 2. Yellow. June. S. Amer. 1800. Annual.
- *heterophylla* (various-leaved). 2. Yellow. August. Mexico. 1803. Greenhouse herbaceous perennial.
- *leucantha* (white-flowered). 1½. White. July. S. Amer. Annual.
- *macrocarpa* (large-seeded). 1. Yellow. June. Siberia. 1829. Annual.
- *odorata* (sweet-scented). 3. White. June. Mexico. 1825. Annual.
- *procera* (tall). 6. Yellow. November. Mexico. 1822. Herbaceous perennial.
- *repens* (creeping). 2. Yellow. July. Nepal. 1819. Deciduous creeper.
- *serrulata* (fine-toothed). July. 1829. Biennial.

BIDWILLIA. (Named after Mr. Bidwell, of Sydney, an ardent cultivator of bulbs. Nat. ord., *Lilyworts* [Liliacæ]. Linn., 6-*Hexandria* 1-*Monogynia*. Allied to *Anthericum*.)

Hardy bulb. Divisions and offsets; light, rich soil.

- B. glaucescens* (milky-green). White. May. Australia. 1843.

BIEBERSTETNIA. (Named after M. Von Bieberstein, who wrote a Russian Flora. Nat. ord., *Rueworts* [Rutacæ]. Linn., 10-*Decandria* 4-*Pentagynia*. Allied to the common Rue.)

Half-hardy herbaceous perennial. Cutting under a hand-glass, in the beginning of summer; seeds, in a slight hotbed, under a glass, in March or April. Requires the protection of a cold pit during winter, or a very dry, sheltered place.

- B. odorata* (sweet). Yellow. May. Altaia. 1837.

BIENNIAL, from *biennis*, the Latin for of two years' continuance, is a plant which, being produced from seed in one year, perfects its seed and dies during the year following. Biennials may often be made to endure longer if prevented ripening their seeds; and many exotics, biennials in their native climes, are perennials in our stoves.

Hardy Biennials.—Some of these ripen their seeds as early as August, in which case they may be sown as soon as harvested. Others, ripening their seeds later, must have these reserved from sowing until May. The double varieties of wall-flowers, stocks, &c., are propagated by cuttings.

Frame Biennials.—These require the shelter of a frame during the early stages of their growth; to be removed thence, in May, to the borders, where they bloom in July and August.

BIFRENA'RIA. (From *bis*, twice, and *frænum*, a strap; in reference to a double strap, or band, by means of which the pollen masses are connected with their gland. Nat. ord., *Orchids* [Orchidacæ]. Linn., 20-*Gynandria* 1-*Monandria*. Allied to *Maxillaria*.)

Stove orchids. Offsets and divisions. Peat, sphagnum, charcoal, and broken pots; raised above the surface of pots, or in baskets. Summer temp., 65° to 85°; winter, 60° to 65°, and rather dry.

- B. atro-purpurea* (dark purple). Dark purple. Rio Janeiro. 1828.
- *aurantiaca* (orange-coloured). 3. Orange-spotted. September. Demerara.
- *atro-fu'va* (orange-tawny). Orange. Rio Janeiro. 1843.
- *Hardwennii* (Mr. Hardwen's). 1½. Green, chocolate, white. June. Brazil. 1851.
- *longicornis* (long-horned). Orange, brown. Demerara.
- *vitellina* (yolk-coloured). Yellow. Rio Janeiro. 1843.

BIGNON'IA. Trumpet Flower. (Named after Abbé Bignon, librarian to Louis XIV. Nat. ord., *Bignoniads* [Bignoniacæ]. Linn., 14-*Didynamia* 2-*Angiospermia*.)

This order furnishes the most gorgeous climbers

in the world; natives of the tropical forests in either hemisphere, a tenth part of which are said not to be yet introduced to our gardens. Stove evergreen climbers, except where otherwise specified. Propagated easily by young, stiff side-shoots, taken off in summer, inserted in sand, under a bell-glass, and placed in bottom-heat; peat and loam. Summer temp., 60° to 75°; winter, 45° to 55°. These mostly produce their flowers on short shoots, proceeding from well-ripened buds of the previous year's wood. Few do well as pot-plants; they like to ramble over the roof of a cold stove. If the wood is well hardened in summer, many of them do well on the rafters of a common greenhouse, and flower more freely than they would do in a stove; but you must have patience until they fairly mount the rafters. *Jasminoides* may be taken as a type of these. The only hardy species is *Capreolata*, which is an ornamental wall-climber in a sheltered situation; propagated easily by cuttings of its roots, or shoots, under a hand-glass, in spring or autumn. It has been recommended to try *Crucigera*, in similar situations, grafted on *Capreolata*. The *Radicans* and its near neighbour, but prettier *Grandiflora*, the only other hardy species of the order, have been transferred to *Tecomia*, which see; the difference in the genera consisting chiefly in the partition of the fruit, being parallel in *Bigonia*, and contrary in *Tecomia*.

- B. adenophylla* (gland-leaved). E. Ind. 1832.
— alba (white). 8. White. Guiana. 1823.
— alliacea (garlic-scented). 10. Yellow. W. Ind. 1790.
— amœna (pleasing). 20. Yellow. E. Ind. 1828.
— Apurensis (Apures). 10. Yellow. Orinoco. 1824.
— æquinoctialis (equinoctial). 40. Yellow. June. Guiana. 1763.
— asculiflora (horse-chestnut-flowered). 20. Yellow. Mexico.
— bijuga (twin-leaved). 6. Madagascar. 1822.
— caudicans (whitish). 10. Cayenne. 1820.
— capreolata (tendrilled). 15. Scarlet. June. N. Amer. 1710.
— Carolinæ (Carolina). 10. Cream. Carolina.
— Chamberlaynit (Chamberlayne's). 40. Yellow. August. Brazil. 1820.
— Chilca (Chica). 10. Orinoco. 1819.
— Chirere (Chirere). 10. Red, orange. Guiana. 1824.
— chrysantha (yellow-flowered). 10. Yellow. Guiana. 1823.
— chrysoleuca (yellowish-white). 10. Yellowish-white. July. S. Amer. 1824.
— Clematis (Clematis). 15. Caraccas. 1820.
— crenata (scalloped). 10. E. Ind. 1823.
— crucigera (cross-stemmed). 20. Yellow, scarlet. S. Amer. 1759.
— decipiens (deceiving). 10. E. Ind. 1823.
— diversifolia (various-leaved). 10. Mexico. 1825.
— echinata (bristly-fruited). 20. Purple. Guiana. 1804.
— elongata (elongated). 8. Purple. S. Amer. 1820.
— floribunda (many-flowered). 12. White. Caraccas. 1816.
— gracilis (slender). 50. Yellow. April. S. Amer. 1810.
— grandifolia (large-leaved). 60. Purple, red. June. Caraccas. 1816.
— incarnata (flesh-coloured). 4. White, orange. Guiana. 1820.
— Indica (Indian). 40. Purple. India. 1776.

- B. jasminifolia* (jasmine-leaved). 10. White. Orinoco. 1826.
— jasminoides (jasmine-like). 30. Purple. Moreton Bay. 1830.
— lactiflora (milk-flowered). 20. White. May. Santa Cruz. 1823.
— latifolia (broad-leaved). 10. Yellow. Cayenne. 1823.
— laurifolia (laurel-leaved). 20. Guiana. 1804.
— leucoxylon (white-wooded). 12. Pink. W. Ind. 1759.
— littoralis (shore). Pink, red. Mexico. 1824.
— lucida (shining). 10. E. Ind. 1823.
— meonantha (smaller-flowered). 20. Pink. June. N. Holland.
— mollis (soft). 10. Guiana. 1818.
— mollissima (very soft). 10. Caraccas. 1826.
— multifida (many-cleft). 10. E. Ind. 1823.
— pallida (pale-flowered). 15. White. July. W. Ind. 1823.
— picta (painted). 10. Variegated. S. Amer. 1823.
— pubescens (downy). 15. Yellow. June. Cam-peachy. 1759.
— purpurea (purple). 6. Purple. S. Amer. 1822.
— quadranguilaris (four-angled). 10. E. Ind. 1823.
— salicifolia (willow-leaved). 10. Yellow. Trinidad. 1824.
— serratifolia (saw-leaved). 20. Yellow. W. Ind. 1822.
— serrulata (fine-toothed). E. Ind. 1832.
— speciosa (handsome). 20. Pink. May. Uruguay. 1838.
— spectabilis (showy). 10. Purple. W. Ind. 1820.
— spicata (spiked-flowered). Trinidad. 1822.
— staminea (long-stamened). 10. Yellow. Hispaniola. 1825.
— suberosa (cork-barked). 38. White. E. Ind. 1820.
— tomentosa (woolly). 10. Japan. 1820.
— triphylla (three-leaved). 10. White. S. Amer. 1783.
— Tweediana (Mr. Tweedie's). 20. Yellow. June. Buenos Ayres. 1838.
— varia (variable). 10. Yellow, white. W. Ind. 1819.
— venusta (lovely). 4. Orange. September. S. Amer. 1816.

BILBERRY. *Vaccinium myrtillus*.

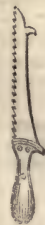
BILIMBI-TREE. *Averrhoa bilimbi*.

BILL, a sharp-edged tool, employed in cutting hedges, sharpening stakes, &c. It should never be used in pruning; but, where the branch is too strong to be cut with the knife, the saw ought always to be applied. An implement well adapted for this purpose is Dean's bill; for it has a narrow blade with a keen-cutting edge, and a saw at the back, made expressly for cutting green wood, warranted

not to buckle or stick fast.

BILLARDIE'RA. Apple Berry. (Named after *Lubillardière*, a French botanist. Nat. ord., *Pittosporads* [*Pittosporaceæ*]. Linn., 5-Pentandria 1-Monogynia.)

Greenhouse evergreen climbers. Seeds sown in a little heat, in April, from cuttings in May



or June, in sand, under a bell-glass; loam and peat. Summer temp., 50° to 70°; winter, 40° to 48°.

- B. angustifolia* (narrow-leaved). 2. Cream. July. N. Holland. 1820.
 — *Daphnoides* (Daphne-like). Yellow, purple. May. N. S. Wales. 1840.
 — *longiflora* (long-flowered). 20. Crimson. July. Van Diemen's Land. 1810.
 — *mutabilis* (changeable). 8. Crimson. August. N. S. Wales. 1795.
 — *ovalis* (oval-leaved). 20. Green, yellow. Van Diemen's Land. 1833.
 — *parviflora* (small-flowered). 12. Blue. July. N. Holland. 1825.
 — *scaevola* (climbing). 12. Purple. August. N. S. Wales. 1790.

BILLEBERGIA. (Named after *Billberg*, a Swedish botanist. Nat. ord., *Bromeliaceae* [Bromeliaceae]. Linn., 6-*Hexandria* 1-*Monogynia*.)

Stove plants, formerly belonging to *Bromelia*. Suckers and divisions; sandy loam, peat, and a little rotten cow-dung. Summer temp., 60° to 75°; winter, 55° to 60°.

- B. amœna* (pleasing). 2. Yellow. June. S. Amer. 1817.
 — *bicolor* (two-coloured). 2. Rose, blue. May. Rio Janeiro. 1829.
 — *clavata* (club-shaped). 1½. Blue. February. Trinidad. 1824.
 — *cruenta* (bloody). 1. Blue, red. August. Rio Janeiro. 1824.
 — *fasciata* (banded). 1½. Blue, red. August. Rio Janeiro. 1825.
 — *iridifolia* (iris-leaved). 1. Scarlet, yellow. March. Rio Janeiro. 1825.
 — *nudicaulis* (naked-stemmed). 2. Crimson. May. Trinidad. 1822.
 — *purpurea* (purple). Rose, purple. October. Brazil.
 — *purpurea-rosea* (purple and rosy). 2. Rose, purple. November. Brazil. 1831.
 — *pyramidalis* (pyramidal). 2. Crimson. February. Rio Janeiro. 1817.
 — *thyrsoides* (dense-flowered). Scarlet. November. Brazil.
 — *Wetherelli* (Mr. Wetherell's). Blue and yellow. December. Bahia.
 — *zebrina* (zebra-streaked). 1½. June. S. Amer. 1826.
 — *zonata* (zoned-leaved). 1½. White. March. Brazil. 1843.

BINDING. A term applied to adhesive soils, to describe the closeness and hardness of their texture in hot, dry seasons. (See **BAKING**.) This term applies, also, to some gardening processes. Thus, fastening a graft or bud in its place, by means of bast or other material, is termed *binding* in some counties.

BINDWEED. *Convolvulus*.

BIO-PHYTUM. *Oxalis bio-phytum*.

BIRCH. *Betula* and *Carpinus betula*.

BIRDS are benefactors, as well as injurers, of the gardener. They destroy millions of grubs, caterpillars, and aphides, which would have ravaged his crops; but, at the same time, some commit havoc

upon his fruit and seeds. The wisest course, consequently, is to scare them from the garden at such times, or from the portions of it in which they can be prejudicial, but to leave them to visit it unmolested whenever and wherever they cannot be mischievous. Thus, in early spring, a boy or two will drive them away during such time as the buds of the gooseberry, currant, and plum are open to their attacks; and again during the time that the cherries are ripe. To keep them from the fruit of late gooseberries and currants, it is sufficient to interlace thickly the bushes with red worsted. To keep them from attacking peas and other vegetables just emerging from the soil, a similar display of white thread, fastened to pegs about six inches from the surface, is also sufficiently deterring. Nets, where available, are also effectual guardians. By these aids, but especially by the watching during certain seasons, the gardener may protect himself from injury at a very trifling expense, without depriving himself of the services of the most sharp-sighted, most unwearying, and most successful of all insect-killers.

INSECT-EATING BIRDS, WHICH DO NOT EAT FRUITS OR SEEDS.

One of the most exclusively insect-eating birds is the golden-crested wren (*Regulus cristatus*, Ray), the smallest of the birds of Europe. The species which come nearest to the gold-crest, in appearance and habits, are the wood-wren (*Sylvia sibilatrix*), and the willow-wren, or hay-bird (*S. fitis*). The chaff chaff (*S. loquax*) also ranks with these as an insect-eating bird, but is least common. The nightingale (*Sylvia lusciniæ*) does considerable service to the cultivator, by devouring numbers of caterpillars and grubs, as well as the moths, butterflies, and beetles from which they are produced. The whinchat (*Saxicola rubetra*), the stonechat (*S. rubicola*), and the wheatear (*S. ænanthe*), may be ranked as insectivorous birds; the stonechat particularly. The whinchat frequents cabbage-gardens and turnip fields after the breeding season, and ought to be protected, because it not only eats insects, but small shell-snails, while it never touches fruits or seeds. The wheatear is equally beneficial in clearing crops from insects, without levying any contribution for its services.

The wagtails, particularly the yellow one, (*Motacilla flava*), feed wholly on insects, particularly gnats, midges, and other flies that tease cattle. They will also follow the spade, to feed upon the worms and grubs turned up; and, in this way, no doubt, thousands of wire-worms and other destructive vermin are effectually destroyed. The tree-pipet, or tit-lark (*Anthus arboreus*), and the meadow-pipet (*A. pratensis*), are common hedge-birds, which search busily after the autumnal hatches of caterpillars and grubs, or the smaller flies and beetles, which they find among the herbage. The cuckoo, the common fly-catcher, and the flusher, or lesser butcher-bird, may be classed among the insectivorous-feeding birds. To these many other hedge-birds might be added, such as the nightjar, the sedge-bird, the wryneck, the creeper, and the bottle-tit, none of which are in the least destructive; while, from their feeding exclusively, or nearly so, on insects, they are of much service in diminishing the number of such as are injurious to field and garden crops.

INSECT-EATING BIRDS WHICH EAT FRUIT OR SEEDS.

These are the common wren, the hedge-sparrow, or dunnock, the redbreast, the redstart, the tom-tit, the cole-tit, the marsh-tit, and the greater-tit. The weeds and insects which these birds destroy will, however, certainly more than compensate for the few heads of grain, the flower-seeds, or small fruit which they may occasionally pilfer.

FRUIT-EATING BIRDS, WHICH ALSO FEED ON INSECTS.

In this list are the black-cap, babillard, (*Curruca garrula*), the garden-warbler, the whitethroat, the missel-thrush, the song-thrush, the blackbird, and the starling.

DECIDEDLY DESTRUCTIVE BIRDS.

The greater portion of those to be enumerated are exclusively grain-eaters, and make no return for their depredations by destroying insects, though they no doubt contribute to keep down the diffusion of weeds by the quantity of seeds which they devour. The goldfinch, the yellow-hammer, the ciril-bunting, the reed-bunting, the corn-bunting, the skylark, the woodlark, the linnet, the chaf-

finch, the mountain-finch, the bullfinch, the house-sparrow, and the tree-sparrow.

BIRD CHERRY. *Cerasus padus*.

BIRD PEPPER. *Capicum baccatum*.

BIRD'S BILL. *Trigonella ornithopodioides*.

BIRD'S EYE. *Primula farinosa*.

BIRD'S FOOT. *Orthopus* and *Euphorbia orthopopus*.

BIRD'S-FOOT TREFOIL. *Lotus*.

BIRD'S NEST. *Asplenium nidus*.

BIRD'S TONGUE. *Ornithoglossum*.

BIRTHWORT. *Aristolochia*.

BISCUTELLA. Buckler Mustard. (From *bis*, double, or twice, and *scutella*, a saucer; in reference to the shape of the seed-vessel when bursting. Nat. ord., *Cruciferae* [Brassicaceæ]. Linn., 15-*Tetradynamia*. Allied to *Thlaspe*, or *Shepherd's Purse*.)

All hardy. The annuals, by seed in March; the perennials, by division then or in September. Common soil.

PERENNIALS.

- B. ambigua* (doubtful). 3. Yellow. June. Italy. 1820.
- *coronopifolia* (buckthorn-leaved). 4. Yellow. June. Italy. 1790.
- *lævigata* (smooth-podded). 1. Yellow. June. Italy. 1777.
- *alpestris* (alpine). 1. Yellow. June. Hungary. 1816.
- *longifolia* (long-leaved). Switzerland. 1832.
- *montana* (mountain). 1. Yellow. Spain. 1823.
- *raphanifolia* (radish-leaved). 1½. Yellow. July. Sicily. 1822.
- *saxatilis* (rock). 1. Yellow. June. South Europe. 1821.
- *sempervirens* (evergreen). 1. Yellow. June. Spain. 1784.
- *stenophylla* (narrow-leaved). 1. Yellow. June. Spain. 1826.

ANNUALS.

- B. ciliata* (hair-fringed). 1. Yellow. June. South of France. 1820.
- *Columnæ* (Columna's). 1. Yellow. June. South of Italy. 1823.
- *depressa* (depressed). 4. Yellow. June. Egypt. 1811.
- *lyrata* (lyre-leaved). 1½. Yellow. July. Spain. 1799.
- *maritima* (sea). 1½. Yellow. June. Naples. 1824.
- *obovata* (reversed-egg-shaped). 1. Yellow. June. Europe. 1817.

BISE/RULA. Hatchet Vetch. (From *bis*, twice, and *serrula*, a saw; in reference to the seed-pods being armed with teeth. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 17-*Diadelphia* 4-*Decandria*. Allied to *Astragalus*.)

Hardy annual. Seeds in April or September. Sandy soil.

- B. pelecimus* (bastard-corn-weed). 1. Purple. July. South Europe. 1640.

BITTER OAK. *Quercus coccinea*.

BITTER-SWEET. *Solanum dulcamara*.

BITTER VETCH. *Orobus*.

BITTER WOOD. *Xylophia*.

BIVONA. (After A. Bivona Bernardi, a professor of botany in Sicily. Nat. ord., *Cruciferae* [Brassicaceae]. Linn., 15-Tetradynamia. Allied to *Lepidium*.)

Hardy annual. Seeds; common soil.

B. lutea (yellow). ♀. Yellow. June. Italy. 1824.

BRXA. Arnotta. (Its native name in South America. Nat. ord., *Bixads* [Flacourtiaceae]. Linn., 13-Polyandria 1-Monogynia.)

The reddish pulp which surrounds the seeds of *B. Orellana* is the Arnotta of commerce, used in the preparation of chocolate, and by farmers for colouring cheese, and also by dyers for a reddish colour. Stove evergreen trees. Cuttings of half-ripened shoots in sand, under a bell-glass, and in heat; lumpy peat and loam. Summer temp., 65° to 85°; winter, 50° to 60°.

B. Orellana (Orellana). 20. Pink. June. W. Ind. 1690.

— *purpurea* (purple). 20. Purple. July. E. Ind. 1817.

— *Urucurana* (Urucu). 20. Pink. July. Brazil. 1820.

BIZARRE. See CARNATION.

BLACK ADIANTUM. *Asplenium adiantum-nigrum*.

BLACK ARCH-MOTH. See PSILURA MONACHA.

BLACK BRYONY. Poisonous weeds, which need not be further noticed.

BLACK BULLACE. *Prunus insillitia*.

BLACKBURNIA. (Named after Mr. Blackburn. Nat. ord., *Xanthoxyls* [Xanthoxylaceae]. Linn., 4-Tetrandria 1-Monogynia.)

Greenhouse evergreen shrub. Cuttings of half-ripe shoots in sand, under a bell-glass, in April; also by layers, in autumn; peat and loam, both fibry and sandy. Summer temp., 55° to 75°; winter, 40° to 45°.

B. pinna'ta (leafleted). White. May. Norfolk Island. 1829.

BLACK CATERPILLAR. See ATHALIA SPINARUM.

BLACK FLEA. (*Haltica nemorum*.) No insect is more insidious or more sweeping in the destruction it brings upon some of the farmers' or gardeners' crops than the turnip-flea (*Haltica nemorum*). Turnips of all kinds, beet-root, mangold-wurtzel, radishes, and flax, are all liable to be destroyed by this insect. It is a singular misapplication of terms, that this insect is known among cultivators of the soil as the black and the turnip flea or fly, none of them ever calling it a beetle, which it really is; and

the most descriptive name is the turnip-flea beetle, for this describes not only its real nature, but its favourite food, and its extraordinary power of skipping or leaping like the common flea. This



insect is represented in our drawing of its natural size and magnified. The body, one-eighth of an inch long, is rather flattened, and of a brassy-black colour, thickly dotted; the wing-cases are greenish-black, with a pale-yellow, broad line on each; the base of the feelers (antennae) and the legs are pale clay-coloured. The eggs are laid on the under side of the rough leaf of the turnip from April to September. They hatch in two days. Their maggots live between the two skins or cuticles of the rough leaf, and arrive at maturity in sixteen days. The chrysalis is buried just beneath the surface of the earth, where it remains about a fortnight. The beetles are torpid through the winter, and revive in the spring, when they destroy the two first or seed leaves of the young turnip. There are five or six broods in a season. These insects are most to be feared in fine seasons. Heavy rains, cold springs, and long droughts destroy them. Their scent is very perfect: the beetles fly against the wind, and are attracted from a distance. The rapid growth of a plant is the best security against them; to secure which, sow plenty of seed, all of the same age. Burning the surface of the land is beneficial, by destroying the chrysalides. Deep digging is an excellent practice when the chrysalides are in the soil. Drilling is a far superior practice to sowing the seed broadcast. Destroy charlock: it affords support to the beetles before the turnips come up. The most effectual banishment of the turnip-fly, we think, is secured by sowing

the surface of the soil with gas-lime two or three mornings after the turnip-seed has been sown. This is so offensive to the insect as to drive it away just at the time the young plants are appearing above ground.—*The Cottage Gardener*, ii., 93.

BLACK GRUB. *Athalia spinarum*.

BLACK JACK OAK. *Que'rcus ni'gra*.

BLACK PINE. *Pinus Austri'aca*.

BLACK SALTWORT. *Glaux mari'tima*.

BLACK THORN. *Pru'nus spino'sa*.

BLACK VARNISH-TREE. *Melanorrhœ'a*.

BLACK WATTLE. *Callico'ma serrati'folia*.

BLADDER BLIGHT. See PEACH—*Blistering of Leaf*.

BLADDER KETMIA. *Hibi'scus trio'num*.

BLADDER NUT. *Staphyle'a*.

BLADDER SENNA. *Colu'tea*.

BLADDER CATCHFLY. *Sile'ne infla'ta*.

BLÆ'RIA. (Named after Dr. Blair, a physician. Nat. ord., *Heathworts* [Ericaceæ]. Linn., 4-Tetrandria 1-Monogynia.)

Greenhouse evergreen shrubs, from the Cape of Good Hope. Cuttings of young wood in sand, under a bell-glass; sandy peat. Summer temp., 50° to 65°; winter, 35° to 45°, with plenty of air.

B. articulata (jointed). 2. Pink. May. 1795.

— *ciliaris* (hair-fringed). 2. White. June. 1795.

— *dumo'sa* (bushy). 2. 1806.

— *ericoides* (heath-like). 2. Purple. September. 1774.

— *fasciculata* (bundled). 2. 1812.

— *purpureu* (purple-flowered). 2. Purple. May. 1791.

BLÆ'KEA. (Named after Martin Blake, an active promoter of useful knowledge. Nat. ord., *Melastomads* [Melastomacæ]. Linn., 11-Dodecandria 1-Monogynia. Allied to Miconia.)

Stove evergreen shrubs. Cuttings from shoots, rather firm; plant in sandy peat, in bottom-heat, under a glass; peat and loam. Summer temp., 60° to 85°; winter, 50° to 55°.

B. quinquenervia (five-nerved). 10. White. June. Trinidad. 1820.

— *trine'rvia* (three-nerved). 8. White. June. Jamaica. 1789.

BLANCHING, or ETIOLATION, is effected by making plants grow in the dark; and the more completely the light is excluded, the more entire is the absence of colour from the leaves and stems of the plants. The colouring matter of these is entirely dependent upon their power to decompose water and carbonic acid gas—a power they do not possess when light is absent. The effect of blanching is to render the parts more delicately flavoured, more pleasing to the eye, and

more crisp—properties very desirable in sea-kale, celery, rhubarb, endive, lettuces, &c. Wherever it can be accomplished, blanching-pots should be employed, in preference to covering the plants with earth or other materials. The flavour is better, and decay is less liable to be induced. Lettuces and cabbages are usually whitened by tying the leaves over the heart, or centre-bud. In some instances, blanching is undesigned and a positive evil, as when *geraniums* and other plants become pale and weak, from being confined under vines in a greenhouse, where the relative heat and light are disproportioned.

BLANDFO'RDIA. (Named after George, Marquis of Blandford. Nat. ord., *Lilyworts* [Liliacæ]. Linn., 6-Hexandria 1-Monogynia. Allied to *Hemerocallis*.)

Beautiful greenhouse bulbs, requiring the same treatment as *Ixias*. Seeds and offsets. Winter temp., 35° to 45°. Loam and peat.

B. Backhou'sii (Backhouse's). Van Diemen's Land.

— *Cunninghamii* (Cunningham's). Red, yellow. N. Holland.

— *flammea* (flame-flowered). Flame. Australia. 1836.

— *grandiflora* (large-flowered). 2. Crimson. July. N. S. Wales. 1812.

— *intermedia* (intermediate). Yellow. September. N. Holland. 1844.

— *marginala* (rough-edged-leaved). 2. Copper. July. Australia. 1842.

— *nobilis* (noble). 2. Orange. July. N. S. Wales. 1803.

BLAST, or BLIGHT, is the popular name for any withering of plants of which neither the scientific title nor the causes are known to the observer. The mildew of corn; the honey-dew on fruit-trees; the withering occasioned by violent cold winds in early spring; and the ravages of the hawthorn caterpillar, are all spoken of by the uninformed under the above titles.

BLEABERRY, or BILBERRY. *Vaccinium myrtillus*.

BLE'CHNUM. (From *blechnon*, a Greek name for a Fern. Nat. ord., *Ferns* [Polypodiaceæ]. Linn., 24-Cryptogamia 1-Filices.)

Spores or seed, and divisions at the root; peat and loam. The Cape of Good Hope and New Holland species will thrive in the greenhouse; the South American and Indian require the stove, though none of them will find fault with its heat. Summer temp., 60° to 90°; winter, 55° to 60°. *B. serrulatum* is hardy.

B. angustifolium (narrow-leaved). 1. Brown. July. W. Ind.

— *australe* (southern). 2. Brown. June. Cape of Good Hope. 1691.

- B. Brazilienae* (Brazilian). 2. Brown. June. Brazil. 1820.
 — *cartilagineum* (cartilaginous). 1. Brown. July. N. Holland. 1820.
 — *Corcovadenae* (Corcovado). 4. Brown. July. Brazil. 1837.
 — *denticulatum* (toothed). Brown. June. Teneriffe. 1825.
 — *Finlaysonianum* (Finlayson's). Brown. Malacca.
 — *Fontanesianum* (Desfontaine's). Brown. July. Brazil.
 — *glandulosum* (glanded). 1. Brown. April. Brazil. 1823.
 — *gracile* (slender). 2. Brown. November. Brazil. 1830.
 — *hastatum* (halbert-shaped). 1. Brown. July. Chili. 1841.
 — *intermedium* (intermediate). 1. Brown. July. Brazil. 1841.
 — *lanceolatum* (lance-leaved). 3. Brown. September. Brazil. 1829.
 — *lavigatum* (smooth). 1. Brown. July. N. Holland. 1821.
 — *longifolium* (long-leaved). 1. Brown. July. Caracas. 1820.
 — *nitidum* (shining). Brown. Isle of Luzon.
 — *occidentale* (western). 1. Brown. August. Brazil. 1823.
 — *orientale* (eastern). Brown. July. E. Ind.
 — *pectinatum* (comb-leaved). 1. Brown. August. S. Amer. 1827.
 — *polypodioides* (polypodium-like). 1. Brown. September. Brazil. 1829.
 — *serrulatum* (saw-edged). 2. Brown. July. Florida. 1819.
 — *striatum* (furrowed). 1. Brown. July. N. Holland. 1824.
 — *triangulare* (three-angled). Brown. July. Mexico. 1841.
 — *trifoliatum* (three-leaved). Brown. July. Brazil. 1841.

BLECHUM. (From a Greek name for an unknown plant, supposed to be *Marjoram*. Nat. ord., *Acanthads* [Acanthaceæ]. Linn., 14-*Didymia* 2-*Angiospermia*. Allied to *Didiptera*.)

Stove herbaceous perennials. Cuttings of young, firm shoots in spring or summer; peat and loam. Summer temp., 60° to 80°; winter, 45° to 55°.

- B. angustifolium* (narrow-leaved). 1. Blue. June. Jamaica. 1824.
 — *Brazilienae* (Brazilian). 1. Blue. June. Brazil. 1824.
 — *Brownii* (Brown's). 2. June. W. Ind. 1780.
 — *laxiflorum* (loose-flowered). 2. White. Jamaica. 1818.

BLEEDING. See EXTRAVASATED SAP.

BLEPHARIS. (From *blepharis*, the eyelash; in reference to the fringed bractes. Nat. ord., *Acanthads* [Acanthaceæ]. Linn., 14-*Didymia* 2-*Angiospermia*. Allied to *Acanthus*.)

The annuals and biennials by seed in hotbed, as tender annuals; the trailers and under-shrubs by the same means, and by cuttings in heat, under a bell-glass.

- B. Boerhaviaefolia* (Boerhavia-leaved). 1. Blue. July. E. Ind. 1829. Stove annual.
 — *Capensis* (Cape). 1. Blue. July. Cape of Good Hope. 1816. Greenhouse biennial.

- B. furcata* (fork-spined). 2. July. Cape of Good Hope. 1816. Greenhouse evergreen shrub.
 — *linearifolia* (narrow-leaved). 2. Blue. July. Guinea. 1823. Stove annual.
 — *procumbens* (procumbent). 1. July. Cape of Good Hope. 1825. Greenhouse evergreen trailer.

BLEPHYLIA. (From *blepharis*, the eyelash; in reference to the fringed bractes. Nat. ord., *Labiates* [Lamiaceæ]. Linn., 2-*Diandria* 1-*Monogynia*. Allied to *Monarda*.)

Hardy herbaceous perennials. Seeds, and dividing the roots in April and September. Common soil.

- B. cilialta* (hair-fringed). 3. Red. July. N. Amer.
 — *hirsuta* (hairy). Purple. August. N. Amer. 1798.

BLESSED THISTLE. *Centaurea benedicta*.

BLETTIA. (Named after a Spanish botanist of the name of *Blet*. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-*Gynandria* 1-*Monandria*.)

Stove terrestrial orchids, except where otherwise specified. Division of the roots, when done flowering or starting into growth; peat, loam, and a little sand, enriched with top dressings of cow-dung or manure, watering when growing. Summer temp., 60° to 90°; winter, 45° to 55°.

- B. acutipetala* (acute-petaled). 5. Purple. September. America. Greenhouse.
 — *campanulata* (bell-flowered). Purple and white. Peru.
 — *capitata* (headed). June. W. Ind. 1795.
 — *catenulata* (linked). 1½. Purple. Peru. 1844.
 — *florida* (florid). 2. Rose. February. Trinidad. 1786.
 — *Gebina* (Japanese). 1. White. April. Japan. 1846.
 — *gracilis* (slender-scaped). 1½. Yellow. July. Mexico. 1830.
 — *Guineensis* (Guinea). 2. Purple. Sierra Leone. 1822.
 — *Havannensis* (Havannah). 2½. Purple. April. Havannah. 1835.
 — *hyacinthina* (hyacinth-like). 1. Rose and crimson. April. China. 1802.
 — *patula* (spreading-flowered). 2. Purple. Hayti.
 — *Parkinsonii* (Parkinson's). 1. Rose. January. Mexico. 1838.
 — *reflexa* (bent-back-sepaled). 2. Purple, green. Mexico.
 — *secundata* (one-sided). Green, crimson. Mexico. 1840.
 — *verecunda* (modest). 3. Purple. March. W. Ind. 1793.
 — — *Shepherdii* (Shepherd's). 2. Purple and yellow. January. Jamaica. 1825.

BLIGHIA SA'PIDA. The Akee-tree, the berry of which is so much esteemed in the West Indies. It was named after Captain *Bligh*, the introducer of the Bread-fruit from the Society Islands. It is now united to *Cupania*.

BLIND PLANTS frequently occur in the

cabbage and others of the Brassica tribe. They are plants which have failed to produce central buds; and, as these are produced from the central vessels, if the top of their stems be cut away they usually emit lateral or side-buds from the edge of the wound. *See* BARREN PLANTS.

BLISTERED LEAVES. *See* PEACH.

BLIGHT. *See* BLAST.

BLI'TUM. The Strawberry Blite, or Spinach, is scarcely worth growing. *B. capitatum*, *B. virgatum*, and *B. maritum* are sometimes cultivated.

BLOOD. *See* ANIMAL MATTERS.

BLOOD-FLOWER. *Hæmorrhus*.

BLOODWORT. *Sanguinaria*.

BLOOM, or BLOSSOM, is the popular name for the flowers of fruit-bearing plants.

The organs of fruitfulness are absolutely necessary for the production of seeds, and are always producible by garden-plants properly cultivated. They may be deficient in leaves, or stems, or roots, because other organs may supply their places; but plants are never incapable of bearing flowers and seeds, for, without these, they can never fully attain the object of their creation—the increase of their species. Of course, we exclude the mushroom, and others of which the seed-producing parts are obscure.

Most flowers are composed of the following parts, viz.:—The *calyx*, which is usually green, and enveloping the flower whilst in the bud; the *corolla*, or *petals*, leaves so beautifully coloured, and so delicate in most flowers; the *stamens*, or male portion of the flower, secreting the *pollen*, or impregnating powder; the *pistils*, or female portion, impregnatable by the pollen, and rendering fertile the seeds; and, lastly, the *pericarp*, or *seed-vessel*.

The stamens can be removed without preventing the formation of fertile seed; but their loss must be supplied by the application to the pistils of pollen from some kindred flower.

The calyx is not useless so soon as it ceases to envelope and protect the flower; for the flower-stalk continues increasing in size until the seed is perfected, but ceases to do so in those plants whose calyces remain long green, if these be removed. On the other hand, in the poppy and other flowers, from which the calyx falls early, the flower-stalk does not subsequently enlarge.

The corolla, or petals, with all their varied tints and perfumes, have more important offices to perform than thus to delight the senses of mankind. Those bright colours and their perfumed honey serve to attract insects, which are the chief and often essential assistants of impregnation; and those petals, as observed by Linnæus, serve as wings, giving a motion assisting to effect the same important process. But they have occasionally a still more essential office; for, although they are sometimes absent, yet, if removed from some of those possessing them, the subsequent processes are not duly performed.

The corolla is not always short-lived, as in the cistus; for some continue until the fruit is perfected. The duration of the petals, however, is in some way connected with the impregnation of the seed, for in most flowers they fade soon after this is completed; and double flowers, in which it occurs not at all, are always longer enduring than single flowers of the same species. Then, again, in some flowers they become green, and perform the function of leaves, after impregnation has been effected. A familiar example occurs in the Christmas rose (*Helleborus niger*), the petals of which are white, but which become green so soon as the seeds have somewhat increased in size, and the stamens and other organs connected with fertility have fallen off.

BLOOM. This term is also applied to the fine exudation on the surface of some fruit—purple on the Black Hamburgh Grape, and on some plums, and green on the cucumber. It so improves their appearance that an apparatus has been suggested for adding it artificially. It seems of a resinous nature.

BLUE-BELLS. *Campylopus rotundifolius*.

BLUE-BOTTLE. *Centaurea cyaneus*.

BLUETS. *Vaccinium angustifolium*.

BLUMENBA'CHIA. (Named after J. F. Blumenbach, of Göttingen. Nat. ord., Loasads [Loasacæ]. Linn., 18-Polyadelphia 2-Polyandria.)

Hardy annuals. Seeds in April; rich mould.

B. insignis (remarkable). 2. White. July. Monte Video. 1826. Triller.

— *multifida* (many-cleft-leaved). 1. Greenish-red. July. Buenos Ayres. 1826.

BOATLIP. *Scaphyglottis*.

BOBA'RTIA. (Named in honour of Jacob Bobart, professor of botany at Oxford in the seventeenth century. Nat.

ord., *Irids* [Iridaceæ]. Linn., 3-*Triandria* 1-*Monogynia*.)

The species in this genus should have been united to *Aristea*. Seeds in April; divisions in autumn or spring. Sandy loam; protection of a cool greenhouse or pit in winter.

- B. aurantiaca* (orange). 2. Orange. March. Belgia. 1827. Hardy perennial.
— *gladiata* (sword-shaped). 2. Yellow. June. Cape of Good Hope. 1816.
— *spatheacea* (sheathed). 3. Yellow. June. Cape of Good Hope. 1798.

BOCCO'NIA. (Named after *P. Boccone*, *M.D.*, a Sicilian. Nat. ord., *Poppyworts* [Papaveraceæ]. Linn., 11-*Dodecandria* 1-*Monogynia*.)

Stove evergreen shrubs. Cuttings in sand and heat; fibry, sandy loam. Summer temp., 60° to 80°; winter, 55° to 60°.

- B. frutescens* (shrubby *celandine*). 10. White, yellow. February. W. Ind. 1739.
— *integrifolia* (entire-leaved). 4. White. February. Mexico. 1820.

Bœ'BERA. (Named after *Bæber*, a Russian botanist. Nat. ord., *Composites* [Asteraceæ]. Linn., 19-*Syngenesia* 2-*Superflua*.)

A greenhouse evergreen shrub. Cuttings of young, firmish shoots under a glass; requires a pit or a cool greenhouse in winter.

- B. inca'na* (hoary-herbage). 1½. Golden. Mexico. 1828.

There are other species, but not deserving cultivation.

BOG-BEAN. *Menyanthes trifoliata*.

BOG-EARTH, HEATH-MOULD, or PEAT. By gardeners this is understood as not meaning that mass of moss, or sphagnum, dug out of wet, fenny places for fuel, but a sharp, sandy soil, mixed with the dead, fibrous roots of heath, and usually of a dark-grey colour, such as is found upon the surface beneath the heath on Wimbleton, Bagshot, and many other dry commons. Peat of the best description is thus constituted. Of 400 parts:—

Fine silicious sand	156
Unaltered vegetable fibre	2
Decomposing vegetable matter	110
Silica (flint)	102
Alumina (clay)	16
Oxide of iron	4
Soluble, vegetable, and saline matter	4
Muriate of lime	4
Loss	2

BOG-EARTH PLANTS. See AMERICAN PLANTS.

BOG-MOSS. *Sphagnum*.

BOILER. The vessel employed to supply the pipes or tanks with hot-water or steam, when either of these is used for heating purposes. Many are the ingenious and intricate boilers from time to

time offered to the gardener; but, after much experience with boilers of all descriptions, we can confidently say the most simple is the best. The smaller the boiler and the fireplace, compatible with efficiency, the greater is the economy. We can tell the gardener, also, most decidedly, that the total size of the boiler has nothing to do with that efficiency; the only point to be secured is, *that a sufficient surface of the boiler be exposed to the fire*. The following table shows the amount of boiler-surface which must be exposed to the fire to heat given lengths of pipe, respectively 4 inches, 3 inches, and 2 inches in diameter:—

Surface of boiler exposed to the fire.		4-inch pipe.	3-inch pipe.	2-inch pipe.
	square feet will heat	ft.	ft.	ft.
3½	200	200	266	400
5½	300	300	400	600
7	400	400	533	800
8½	500	500	666	1000
12	700	700	933	1400
7	1000	1000	1333	2000

To prevent the *scale*, or limy crust, which is often so troublesome, dissolve in the water at the rate of one ounce of sal ammoniac (muriate of ammonia) to every sixty gallons. Do this twice in the year; as, in October and April.

BOIS-PERDIX (Partridge-wood). *Heisteria*.

BOLBOPHYLLUM. (From *bulbos*, a bulb, and *phyllon*, a leaf; referring to the leaves issuing from the apex of the bastard bulbs. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-*Gynandria* 1-*Monogynia*.)

Stove orchids. Division of the plant, when fresh potting; sandy, lumpy peat, potsherds, charcoal, and hard chips, raised above the pot, well drained, and the plant fixed there, or on blocks. Summer temp., 60° to 90°, and moist; winter, 55° to 65°, and dry.

- B. barbigerrum* (bearded). ½. Greenish-brown. June. Sierra Leone. 1835.
— *bracteolatum* (small-bracted). 1. Yellow, purple. July. Demerara. 1836.
— *Careyanum* (Dr. Carey's). 3. Brown, purple. October. Nepal. 1832.
— *cocoinum* (cocoa-nut). 1. Flesh. October. Sierra Leone. 1835.
— *cupreum* (copper-flowered). Copper-coloured. Manilla. 1837.
— *erectum* (upright). Mauritius. 1834.
— *flavidum* (yellowish). Yellow. March. Sierra Leone. 1840.
— *fulscum* (brown-flowered). Chocolate. April. Sierra Leone. 1837.
— *hirtum* (hairy). Whitish. E. Ind. 1846.
— *imbricatum* (imbricated). Purple. March. Sierra Leone. 1845.
— *leopardinum* (leopard-spotted). Yellowish-green. E. Ind. 1837.

- B. limbatum* (bordered). 1. Purple. February. Singapore. 1840.
 — *Lo'bbit* (Lobb's). 1. Yellow, brown. March. Java. 1845.
 — *macranthum* (large-flowered). $\frac{1}{2}$ Lemon. March. Sierra Leone. 1844.
 — *occultum* (hidden-flowered). Sierra Leone.
 — *radiatum* (rayed). Brownish-yellow. March. India. 1836.
 — *recurvum* (bent-back). Green, white. September. Sierra Leone. 1822.
 — *saltatorium* (dancing). $\frac{1}{2}$. Greenish-brown. December. Sierra Leone. 1835.
 — *setigerum* (bristle-bearing). Purple. Demerara.
 — *tetragonum* (four-sided). Sierra Leone.
 — *umbellatum* (umbelled). $\frac{1}{2}$. Yellow. E. Ind. 1837.
 — *vaginatum* (sheathed). Brown. March. Singapore. 1840.

BOLDO'A. (United to *Salpianthus*.)

BO'LEUM. (From *bolos*, a ball; in reference to the shape of the seed-pods. Nat. ord., *Cruciferae* [Brassicaceæ]. Linn., 15-Tetradynamia. Allied to *Vella*.)

Half-hardy evergreen under-shrub. Seed in a pot, in spring, set in a frame, or sown in the open border during summer. It requires a little protection in a cold pit during winter, but is hardly worth it.

B. asperum (rough). 1. Cream. June. Spain. 1818.

BOLIV'ARIA. (Named after *Bolivar*, the late republican chief in South America. Nat. ord., *Jasmineworts* [Jasminaceæ]. Linn., 2-Diandria 1-Monogynia.)

Greenhouse evergreen shrub. Cuttings of half-ripened shoots in sand, under a hand-light. Summer temp., 55° to 70°; winter, 40° to 48°.

B. trifida (three-cleft). 2. Yellow. June. Chili. 1828.

BOLTO'NIA. (Named after *J. B. Bolton*, an English professor of botany. Nat. ord., *Compositae* [Asteraceæ]. Linn., 18-Syngenesia 2-Superflua. Allied to *Stenactis*.)

Hardy herbaceous perennials. Division of the roots in March or October; common garden-soil.

B. asteroides (starwort-like). 3. Flesh. September. N. Amer. 1758.
 — *glastifolia* (wood-leaved). $\frac{1}{2}$. Pink. September. N. Amer. 1758.

BOMARE'A. (Name not explained; probably it is commemorative. Nat. ord., *Amaryllids* [Amaryllidaceæ]. Linn., 6-Hexandria 1-Monogynia. Allied to *Alströméria*.)

Two features which cannot be misunderstood divide *Bomare'a* from *Alströméria*—a twining stem and a triangular seed-pod. The tubers of the *B. edulis* are eaten, in St. Domingo, like those of Jerusalem artichoke. It is a stove plant. The others prefer a deep, rich, light border in the open air, with a slight protection from frost. *B. acutifolia*, planted in a good, cold greenhouse, inside border, will twine up ten or twelve feet, and flower better than in any other way. For culture, see *ALSTRÖMERIA*.

- B. acutifolia* (pointed-leaved). 9. Red, yellow. September. Mexico.
 — *punctata* (dotted-flowered). 6. Spotted. September. Mexico. 1829.
 — *edulis* (eatable-tubered). 6. Red. July. Trinidad. 1820.
 — *hirtella* (small-haired). Red, yellow. July. Mexico. 1824.
 — *ovata* (egg-shape-leaved). Red and green. Chili. 1824.
 — *Salsilla* (Salsilla). 5. Green, crimson. June. S. Amer. 1806.

BO'MBAX. Silk Cotton-tree. (From *bombax*, cotton; in reference to the woolly hairs which envelope the seed, like those of the cotton-plant. Nat. ord., *Sterculiads* [Sterculiaceæ]. Linn., 16-Monadelphica 8-Polyandria.)

Trees more remarkable for their prodigious size than for their use or beauty. Stove trees. Cuttings of rather young shoots, but firm at the base, placed in sandy peat, under a bell-glass, and in bottom-heat; peat and loam. Summer temp., 60° to 85; winter, 50° to 60°.

B. Ceiba (Ceiba). 100. White. S. Amer. 1692.
 — *globosum* (globe-form). 60. Guiana. 1824.
 — *Malabaricum* (Malabar). 60. Scarlet. Malabar.

— *septentarium* (seven-leaved). 50. White. Carthage. 1699.

BONAPARTEA. (Named after *Napoleon Bonaparte*. Nat. ord., *Bromelworts* [Bromeliaceæ]. Linn., 6-Hexandria 1-Monogynia. Allied to *Guzmania*.)

Remarkable for the gracefulness of their long, rush-like leaves. They are well adapted for growing in vases, out of doors, in summer. Stove plants. Seeds in a hotbed; cuttings in sand, under a glass, in heat; well drained. Summer temp., 60° to 70°; winter, 55° to 60°.

B. gracilis (slender). 2. Mexico. 1828.
 — *juñcea* (rush-leaved). $\frac{1}{2}$. Blue. Peru. 1800.

BONA'TEA. (Named after *M. Bonat*, a distinguished Italian botanist. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-Gynandria 1-Monogynia. Allied to *Gymnadenia*.)

Stove orchid. Division of the roots, or semi-bulbous tubers; peat and loam. Summer temp., 60° to 85°; winter, 50° to 55°.

B. speciosa (showy). 2. Green, white. May. Cape of Good Hope. 1820.

BONES are beneficial as a manure, because their chief constituent (phosphate of lime) is also a constituent of all plants; and the gelatine which is also in bones is of itself a source of food to them. The bones of the ox, sheep, horse, and pig, being those usually employed, their analyses are here given:—

	Ox.	Sheep.	Horse.	Pig.
Phosphate of lime	55	70	68	52
Carbonate of lime	4	5	1	1
Animal matter	33	25	31	47

The bones must be applied to the crops in very small pieces or powder; and ten pounds, at the time of inserting the seed, are enough for thirty square yards, if sown broadcast; and a much smaller quantity is sufficient, if sprinkled along the drills in which the seed is sown. There is no doubt that bone-dust may be employed with advantage in all gardens and to all garden-crops; but it has been experimented on most extensively with the turnip and potato, and with unfailing benefit. Mixed with sulphur, and drilled in with the turnip-seed, it has been found to preserve the young plants from the fly. Mr. Knight found it beneficial when applied largely to stone-fruit at the time of planting; and it is quite as good for the vine. To lawns, the dust has been applied with great advantage when the grass was becoming thin. As a manure for the shrubbery, parterre, and greenhouse, it is also most valuable; and, crushed as well as ground, is employed generally to mix with the soil of potted plants. Mr. Maund finds it promotes the luxuriance and beauty of his flowers. One pound of bone-dust, mixed with twelve ounces of sulphuric acid (oil of vitriol), and twelve ounces of water, if left to act upon each other for a day, form super-phosphate of lime, a wineglassful of which has been found beneficial to pelargoniums. Applied as a top-dressing, mixed with half its weight of charcoal-dust, it is a good manure for onions, and may be applied at the rate of nine pounds to the square rod. There is little doubt of this super-phosphate being good for all our kitchen-garden crops, being more prompt in its effects upon a crop than simple bone-dust, because it is soluble in water, and therefore more readily presented to the roots in a state for them to imbibe. Bones broken into small pieces are generally used as drainage for pelargoniums and other potted plants.

BONNA'YA. (Named after the German botanist, *Bonney*. Nat. ord., *Fig-worts* [Scrophulariaceæ]. Linn., 2-*Dianthia* 1-*Monogynia*. Related to *Torenia*.)

Stove plants. Seeds for annuals; divisions, and cuttings of creepers and trailers; rich, sandy loam.

B. brachycarpa (short-seed-podded). Violet. June. E. Ind. 1829. Annual.

— *repicans* (creeping). ♀. Blue. July. E. Ind. 1820. Perennial trailer.

— *serpenticæfolia* (speedwell-leaved). ♀. Pink. August. E. Ind. 1798. Biennial trailer.

BONNETIA. (Named after *C. Bonnet*, a distinguished naturalist. Nat. ord., *Theads* [Ternströmiaceæ]. Linn., 13-*Polyandria* 1-*Monogynia*.)

Stove tree. Cuttings of firm young shoots in sand, under a glass, in heat; loam and peat. Summer temp., 60° to 80°; winter, 55° to 60°.

B. palustris (marsh). Red. Trinidad. 1819.

BO'NTIA. (Named after *J. Bont*, a Dutch physician. Nat. ord., *Myoporads* [Myoporaceæ]. Linn., 14-*Didynamia* 2-*Angiospermia*.)

Stove evergreen shrub, requiring similar treatment to *Bonnetia*.

B. Daphnoides (Daphne-like). 6. Yellow, purple. June. W. Ind. 1630.

BORAGE. (*Bo'rago officinalis*.) Its young leaves, smelling somewhat like cucumber, are sometimes used in salads, or boiled as spinach. Being aromatic, its spikes of flowers are put into negus and cool tankards.

Soil and Situation.—For the spring and summer sowing, any light soil and open situation may be allotted, provided the first is not particularly rich; for those which have to withstand the winter, a light, dry soil, and the shelter of a south fence, are most suitable. A very fertile soil renders it luxuriant, and injures the flavour.

Times and mode of sowing.—Sow in March or April, and at the close of July, for production in summer and autumn, and again in August or September, for the supply of winter and succeeding spring, in shallow drills, twelve inches asunder. When of about six weeks' growth, the plants are to be thinned to twelve inches apart, and the plants thus removed of the spring and autumn sowing may be transplanted at a similar distance; but those of the summer sowing seldom will endure the removal, and at all times those left unmoved prosper most. At the time of transplanting, if at all dry weather, they must be watered until established; water must also be frequently applied to the seed-bed of the summer sowing.

To obtain Seed.—Some of those plants which have survived the winter must be left ungathered from. They will begin to flower about June; and when their seed is perfectly ripe the stalks must be gathered, and dried completely before it is rubbed out.

BO'RAGO. Borage. (Altered from *cor*, heart, and *ago*, to affect; referring to the

cordial qualities of the herbs. Nat. ord., *Borageworts* [Boraginacæ]. Linn., 5-*Pentandria* 1-*Monogynia*.)

Hardy plants. Biennials and annuals from seed; perennials by divisions; common soil.

- B. crassifolia* (thick-leaved). 2. Pink. June. Persia. 1822. Herbaceous perennial.
- *Cretea* (Cretan). 1. Blue. May. Crete. 1823. Herbaceous perennial.
- *laxiflora* (loose-flowered). 1. Blue. June. Corsica. 1813. Trailing biennial.
- *longifolia* (long-leaved). 1. Blue. July. South of Europe. 1825. Annual.
- *officinalis* (common). 3. Blue. August. England. Annual.
- — *albiflora* (white-flowered). 2. White. August. England. Annual.
- *orientalis* (oriental). 2. Blue. June. Turkey. 1752. Herbaceous perennial.

BORA'SSUS. (One of the names applied to the spathe of the date-palm. Nat. ord., *Palms* [Palmacæ]. Linn., 22-*Diacia* 6-*Hexandria*.)

Palm-wine, or toddy, a grateful beverage, is the juice which flows from the wounded spathe of this and some other palms. Stove tree. Seeds; peat and loam. Summer temp., 60° to 90°; winter, 60°.

B. flabelliformis (fan-leaved). 30. White, green. E. Ind. 1771.

BORBO'NIA. (Named after one of the *Bourbon* family. Nat. ord., *Leguminous Plants* [Fabacæ]. Linn., 16-*Monadelphina* 6-*Decandria*. Related to *Scotia*.)

This genus and its allies—*Hovea*, *Lalage*, *Templetonia*, and others of that group—have always been great favourites with gardeners. All greenhouse evergreen shrubs, from the Cape of Good Hope. Cuttings in sand, in April, under a bell-glass, and in a close place, without artificial heat; peat and loam. Summer temp., 50° to 70°; winter, 40° to 45°.

- B. barbatula* (bearded). 4. Yellow. July. 1823.
- *clialta* (hair-fringed). 3. Yellow. July. 1816.
- *cordata* (heart-leaved). 2. Yellow. August. 1759.
- *crenata* (scalloped-leaved). 6. Yellow. July. 1774.
- *ericifolia* (heath-leaved). 2. Pink. January. 1821.
- *lanceolata* (lance-leaved). 5. Yellow. July. 1752.
- *ruscifolia* (ruscus-leaved). 3. Yellow. July. 1790.
- *trineura* (three-nerved). 6. Yellow. July. 1759.
- *undulata* (wave-leaved). 4. Yellow. July. 1812.

BORDER is a name applied to that narrow division of the garden which usually accompanies each side of a walk in the kitchen-garden, and to the narrow bed which is near to the garden-wall on one side, and abuts on a walk on the other. In fact, any bed which acts as a boundary to a walk, or grass-plot, or the main

quarters of a garden, may be properly described as a border.

1. Fruit-Borders.—Next to the wall should be a path, eighteen inches wide, for the convenience of pruning and gathering. Next to this path should be the border, eight or nine feet wide; and then the broad walk, which should always encompass the main compartments of the kitchen-garden. The whole of the breadth from the wall to the edge of this main walk should be excavated to the depth of four feet; the bottom of the excavation rammed hard; brickbats and large stones then put in, to the depth of one foot and a half; and the remaining two feet and a half filled up with suitable soil. From the under-drainage of brickbats, &c., draining-pipes should be laid with an outfall into some neighbouring ditch. No fruit-tree will be healthy if its roots deep, or if its roots are surrounded by superfluous water; that is, more water than the soil will retain by its own chemical and capillary attractions. Shallow-rooting crops do no harm to the trees grown on fruit-borders sufficient to require their total banishment. *See FRUIT-TREES and STATIONS.*

2. Flower-Borders.—These, like the preceding, and, indeed, like every other part of the garden not devoted to aquatic and marsh plants, should be well drained. In plotting them, it must also be remembered that, if narrow, no art will impart to them an aspect of boldness and grandeur. Indeed, narrowness of surface is inseparably connected with an impression that the grounds are of limited extent; and no disposal of the plants will remove the littleness thus suggested. If the pleasure-grounds are small, narrow borders are permissible; but, even then, the broader they are the less is the appearance of meanness. Neatness must be the presiding deity over flower-borders; and no application of the hoe and rake, no removal of decayed leaves, no tying up of straggling members, can be too unremitting. *See FLOWERS.*

Forking-Borders.—No border, whether tenanted by the roots of fruit-trees or flowering-shrubs, should be ever dug with the spade. The surface turned up roughly with the fork, to benefit by the winter frosts, and manure as necessary, turned in with the same implement, are sufficient.

BORECOLE. *Bra'ssica olera'cea fimbriat'a.*

Varieties.—Of the following, 1, 2, 3, 5, 6, 7, 8, 9, 10, 11, and 15 are the best.

1. Brussels Borecole, or Sprouts.
2. Green Borecole, German or curled Kale, or Curlies, Scotch or Siberian Kale, *Bra'ssica olera'cea seleni'sia.*

3. Purple Borecole, *B. olera'cea lacinia'ta.*

4. Variegated Borecole.

5. Chou de Milan.

6. Egyptian or Rabi Kale.

7. Ragged Jack.

8. Jerusalem Kale.

9. Buda, Russian, or Manchester Kale. This is greatly improved by blanching under a pot, like Sea Kale.

10. Anjou Kale.

11. One-thousand-headed Cabbage, *B. olera'cea ace'phala.*

12. Palm Borecole.

13. Portugal, or Large-ribbed.

14. Woburn perennial. This, and, indeed, the whole race, may be propagated by cuttings, six inches long, planted where to remain, in March or April.

15. Barnes's Feathered Savoy.

Sowing.—The first crop sow about the end of March, or early in April, the seedlings of which are fit for pricking out towards the end of April, and for final planting at the close of May, for production late in autumn and commencement of winter. Sow again about the middle of May; for final planting, during July; and, lastly, in August, for use during winter and early spring.

Prick out the seedlings when their leaves are about two inches in breadth; set them about six inches apart each way; and water frequently until established. In four or five weeks they will be of sufficient growth for final removal.

Planting.—Set them in rows two feet and a half apart each way: the last plantation may be six inches closer. They must be watered and weeded; and some of them being of large-spreading growth, the earth can only be drawn about their stems during their early growth. If, during stormy weather, any of those which acquire a tall growth are blown down, they should be supported by stakes, when they will soon firmly re-establish themselves.

To raise Seed.—Select such plants of each variety as are of the finest growth, and either leave them where grown or

remove them during open weather in November, or before the close of February, (the earlier the better,) into rows three feet apart each way, and planted deeply. The seed ripens about the beginning of August.

BORO'NIA. (Named after *Boroni*, an Italian servant of Dr. Sibthorp's. Nat. ord., *Rueworts* [Rutaceæ]. Linn., 8-*Ocandria* 1-Monogynia.)

Greenhouse evergreen shrubs. Cuttings, neither hard nor soft, inserted in sand, under a glass, where there is the mildest heat; sandy peat and charcoal. Though greenhouse plants, most of them like a little extra heat in spring. Summer temp., 60° to 70°; winter, 45° to 50°.

B. ala'ta (winged). 3. Red. May. N. Holland. 1825.

—*anemonafolia* (anemone-leaved). 2. Red. May. N. Holland. 1824.

—*anethifolia* (tunnel-leaved). N. Holland. 1841.

—*crenula'ta* (scalloped-leaved). 2. Red. July. King George's Sound.

—*denticula'ta* (fine-toothed). 2. Red. N. Holland. 1823.

—*dichotoma* (fork-branched). Rose. October. N. Holland. 1841.

—*fulcifolia* (sickle-leaved). Moreton Bay. 1841.

—*Frazeri* (Frazer's). Red. May. N. Holland. 1821.

—*latifolia* (broad-leaved). Red. April. N. Holland. 1824.

—*ledifolia* (ledum-leaved). 2. Red. May. N. S. Wales. 1814.

—*mol'lis* (soft). N. Holland. 1841.

—*microphy'lla* (small-leaved). 2. Pink. N. Holland. 1846.

—*ova'ta* (egg-shape-leaved). Crimson. May. Swan River. 1841.

—*pinna'ta* (leafleted). 2. Purple. August. N. S. Wales. 1794.

—*polygalafolia* (polygala-leaved). 2. Red. May. N. Holland. 1824.

—*sca'bra* (rough). Pink. Swan River.

—*serrula'ta* (saw-edged-leaved). 3. Scarlet. June. N. S. Wales. 1816.

—*spathula'ta* (spathulate-leaved). Pink. Swan River. 1845.

—*tetra'nda* (four-stamened). 2. Red. May. N. Holland. 1824.

—*teretifolia* (round-leaved). Pink. Swan River.

—*triphy'lla* (three-leaved). 2. Pink. May. N. Holland. 1840.

—*vimi'nea* (twiggy). Pink. Swan River.

BORRE'RIA. (Named after *J. W. Borrer*, a British cryptogamist. Nat. ord., *Cinchonads* [Cinchonaceæ]. Linn., 4-*Tetrandria* 1-Monogynia. Allied to *Spermacoce*.)

Stove plants. The biennials from seeds, treated like a tender annual; and the perennials from cuttings in sand, in heat, under a glass; light soil.

B. commuta'ta (changed). †. White. June. W. Ind. 1818.

—*stri'cta* (upright). ‡. White. July. E. Ind. 1820.

—*verticilla'ta* (whorled-flowered). 2. White. July. Africa. 1732.

BO'SCIA. (Named after *L. Bosc*, a

French professor of agriculture. Nat. ord., *Capparids* [Capparidaceæ]. Linn., 11-*Dodecandria* 1-*Monogynia*.)

Cuttings of firm wood in heat, in sand, under a glass; lumpy, fibry loam and peat. Summer temp., 60° to 80°; winter, 60°.

B. Senegale'nsis (Senegal). 3. White. Senegal. 1824.

BOSSIE'A. (Named after Bossieu, who accompanied La Perouse on his fatal voyage. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 16-*Monadelphina* 6-*Decandria*. Allied to Hovea.)

Greenhouse evergreen shrubs and trailers; cuttings of half-ripe shoots in sand, under a bell-glass, in April; peat and loam, both fibry, with a portion of silver-sand, and some pieces of charcoal, to keep the soil open; also seeds sown in a slight hotbed, in March. Summer temp., 60° to 75°; winter, 40° to 50°.

B. busifolia (box-leaved). 4. Yellow. May. N. Holland. 1824.

— *cine'rea* (grey). 3. Yellow. June. Van Diemen's Land. 1802.

— *cordifolia* (heart-leaved). 1. Yellow. May. N. Holland. 1820.

— *disticha* (two-rowed). 2. Yellow. May. N. Holland. 1840.

— *ensata* (sword-branched). 6. Yellow. May. N. Holland. 1824.

— *eriocarpa* (woolly-podded). 1. Yellow. May. King George's Sound. 1837.

— *foliosa* (leafy). 4. Yellow. May. N. Holland. 1824.

— *Hendersoni* (Henderson's). Yellow and bronze. N. S. Wales. 1844.

— *heterophylla* (various-leaved). 3. Yellow. September. N. S. Wales. 1792.

— *lenticularis* (lentil-leaved). 8. Yellow. June. N. Holland. 1823.

— *Linæoides* (Linæa-like). Yellow. May. N. Holland. 1824.

— *linophylla* (flax-leaved). 3. Orange. August. N. Holland. 1803.

— *microphylla* (small-leaved). 3. Yellow. July. N. S. Wales. 1803.

— *ovata* (egg-shape-leaved). Yellow. April. N. S. Wales. 1792.

— *paucifolia* (few-leaved). 2. Yellow, brown. June. Swan River. 1841.

— *prostrata* (prostrate). 4. Yellow. August. N. S. Wales. 1803.

— *rhombifolia* (diamond-leaved). 1. Yellow. May. N. Holland. 1820.

— *rotundifolia* (round-leaved). 3. Yellow. May. N. Holland. 1824.

— *ru'fa* (reddish-yellow-flowered). 6. Orange. August. N. Holland. 1803.

— *scolopendrium* (hart's-tongue-leaved). 10. Yellow. June. N. S. Wales. 1792.

— *spine'scens* (spined). Yellow. N. Holland. 1849.

— *tenuicaulis* (slender-stemmed). 4. Yellow. April. Van Diemen's Land. 1836.

— *virgata* (twiggy). 2. Yellow, red. June. Swan River. 1842.

BOSTRICHUS, a class of beetles, many of which are very injurious to the crops of the garden.

B. dispar, Apple-bark beetle. The female of this insect bores into the wood

of the apple-tree, and there deposits her eggs, generally in the month of May; and its perforations are so numerous and extensive, as frequently, on the continent, to destroy the tree. In England it rarely occurs. The perforations are confined to the albumen, or young wood.

B. typographus, Typographer-bark beetle. This attacks the pine-tribe, especially the silver-fir. A drawing of this insect is given at page 329, vol. iii., of *The Cottage Gardener*.

B. pinastri, Pinaster, or Red-bark beetle, confines its attacks to the pines, leaving the firs untouched, as the *B. laricus* lives exclusively on the larch, and the *B. orthographus* on the spruce-fir.

BOSWELLIA. Olibanum-tree. (Named after Dr. Boswell, of Edinburgh. Nat. ord., *Amyrids* [Amariaceæ]. Linn., 10-*Decandria* 1-*Monogynia*.)

The brittle resin of Boswellia, boiled with oil to render it soft, is used in the East as pitch for the bottoms of ships, and, in the dry state, as frankincense. Stove trees; cuttings of half-ripened shoots, in sand and peat; peat and loam. Summer temp., 60° to 80°; winter, 50° to 60°.

B. glabra (smooth). 30. Pale yellow. Coromandel. 1823.

— *serrata* (saw-edged-leaved). 20. Pale yellow. E. Ind. 1820.

BOTHY. The lodgings assigned to young gardeners in the northern part of the kingdom; and miserable hovels they often were, and, in some cases, still are.

BOTRYCERAS. (From *botrys*, a bunch, and *keras*, a horn; in reference to the bunches of horn-like racemes. Nat. ord., *Anacards* [Anacardiaceæ]. Linn., 4-*Tetrandria* 1-*Monogynia*.)

Greenhouse evergreen shrubs; cuttings of ripened shoots in sand, under a hand-light, in a frame, and the hand-light tilted up at night; sandy peat. Summer temp., 55° to 65°; winter, 38° to 45°.

B. laurinum (laurel-like). 4. N. Holland. 1823.

BOTRYCHIUM. Moonwort. (From *botrys*, a bunch; in reference to the bunch-like formation of the seed-apparatus on the back of the leaf. Nat. ord., *Ferns* [Polypodiaceæ]. Linn., 24-*Cryptogamia* 1-*Filices*.)

Perennial Ferns, hardy, with but one exception; chiefly divisions; peat and loam. *B. australe* should be protected in winter.

B. australe (southern). 4. Brown. June. N. Holland. 1823. Half-hardy.

— *dissectum* (cut-leaved). 4. Brown. July. N. Amer. 1806.

— *fumarioides* (fumitory-like). 4. Brown. July. Carolina. 1806.

— *lunarium* (common moonwort). 4. Brown. May. Britain.

- B. obliquum* (twisted). ½. Brown. August. N. Amer. 1821.
— *Virginicum* (Virginian). 1. Brown. August. N. Amer. 1790.

BOTTLE GOURD. *Lagenaria*.

BOTTOM-HEAT. Naturally the temperature of the soil always bears a due relative proportion to that of the air. When the temperature of the air decreases, that of the soil also decreases, but very slowly; and, when the atmospheric heat increases, that of the soil also gradually rises. Bottom-heat, or heat applied to the roots of plants, is the artificial mode of imitating this proceeding of nature in our hothouses and other structures of that kind. If the temperature of the soil be too cold in proportion to the temperature of the atmosphere, the roots are not stimulated sufficiently to imbibe food as fast as it is required by the branches and foliage; and, as a consequence, the leaves or fruit will fall or wither. On the other hand, if the temperature of the soil be too great in proportion to that of the atmosphere, the roots absorb food faster than it can be elaborated by the leaves; and, as a consequence, over-luxuriant shoots and an extra development of leaves are caused, instead of blossoms and a healthy progress in all the parts.

Every plant obviously will have a particular bottom-heat most congenial to it. Plants growing in open plains will require a higher bottom-heat than those growing in the shade of the South American forests, though the temperature of the air out of the shade may be the same in each country. That gardener will succeed in exotic plant-culture best, who, among his other knowledge, has ascertained the relative temperature of the air and soil in which any given plant grows naturally. At present, such information from actual observation is not obtainable; but it is not so difficult to ascertain the maximum and minimum temperature of the air of a country; and, these being obtained, the gardener may adopt this as a safe rule:—Let the bottom-heat for plants of that country be always 5° higher than the average temperature of each month; that is, if the lowest temperature of the month is 40°, and the highest 70°, the average is 55°; and, if we add 5° to that, we shall have 60° as the bottom-heat for that month. If the average maximum temperature of

the air only be known, let the bottom-heat be less by 10° than the maximum temperature of the air.

BOTTOMING. A term usually applied to the *drainage* of pots, although equally applicable to any kind of horticultural drainage. (See **DRAINING**.) It is also applied to *mowing* grass on lawns, and signifies that the mower should take extra pains in mowing, cutting down almost to the surface of the turf, in order to facilitate future mowings by the production of an entirely fresh herbage, free from moss and the residue of former mowings.

BOURBON PALM. *Lata'nia*.

BOURGEOIS, or BURGEON. See **BUD**.

BOUSSINGAULTIA. (Named after the celebrated chemist, *Boussingault*. Nat. ord., *Basellads* [Basellacæ]. Linn., 6-*Hexandria* 1-*Monogynia*.)

Half-hardy tuberous-rooted plant. Seeds; division of its tuberous roots; peat and rich loam. Summer temp., 60° to 70°; winter, 45° to 55°.

B. baselloides (basella-like). White. July. S. Amer. 1835.

BOUVA'RDIA. (Named after *Dr. Bouvard*, curator of the Botanic Garden at Paris. Nat. ord., *Cinchonads* [Cinchonacæ]. Linn., 4-*Tetrandria* 1-*Monogynia*.)

Greenhouse evergreen under-shrubs, except where otherwise specified. Seed at times, in heat. Cuttings of young shoots in heat, in March or April. Shut up during the day, and air given at night. Also by roots, cut into pieces, and inserted in sandy soil, and placed in a brisk, sweet heat, in spring. Light, fibry soil. Summer temp., 50° to 70°; winter, 35° to 45°.

B. angustifolia (narrow-leaved). 2. Red. September. Mexico. 1838.

— *Cavanillesii* (Cavanilles's). 1½. Scarlet. May. Mexico. 1846.

— *flava* (yellow). 1½. Yellow. September. Mexico. 1844.

— *longiflora* (long-flowered). 2. White. Mexico. 1827.

— *splendens* (shining). Scarlet. September. Mexico. 1834.

— *strigillosa* (small-bristled). 3. Yellow. March. 1845.

— *triphylla* (three-leaved). 2. Scarlet. July. Mexico. 1794.

— — *glabra* (smooth). 2. Scarlet. July. Mexico. 1794.

— — *pubescens* (downy). 2. Scarlet. July. Mexico. 1794.

— — *splendens* (shining). 2. Scarlet. April. Mexico. 1838.

— *versicolor* (various-coloured). 2. Red. August. S. Amer. 1814.

BOWER. See **ARBOUR**.

BOX (*Buxus sempervirens*), is noticed by the gardener chiefly as a plant suitable for edgings. For this purpose it is neat; but it is an exhaustor of the soil more than any other that can be so employed,

and is a favourite lurking-place for the snail. For plants that may be substituted, see *EDGING*. The best months for planting Box are September and February. Small-rooted slips are employed, and are planted against the perpendicular side of a small trench, along the edge of the border or bed they are desired to bound. The best month for clipping Box is June, and it should be done in showery weather. With great attention to not injuring the roots, and to washing earth in among these in their new position, large Box-trees or bushes have been moved in May, June, and July. See *The Cottage Gardener*, iv., 328, 350.

BOX ELDER. *Negu'ndo*.

BOX THORN. *Ly'cium*.

BRABET'UM. African Almond. (From *brabeion*, a sceptre; in reference to the flower-racemes. Nat. ord., *Proteads* [Proteaceæ]. Linn., 23-*Polygamia* 1-*Monœcia*. Allied to *Persoonia*.)

Greenhouse evergreen trees. Cuttings of ripe hoots under a bell-glass, in sand. Sandy loam. Summer temp., 50° to 65°; winter, 35° to 45°.

B. stella'tum (starred). 15. White. August. Cape of Good Hope. 1731.

BRACHY'COME. (From *brachys*, short, and *come*, hair. Nat. ord., *Composites* [Asteraceæ]. Linn., 19-*Syngenesia* 2-*Superflua*. Allied to the Daisy.)

Annuals. Sown in a gentle hotbed in March, and transplanted as a half-hardy annual. *B. diversifo'lia* by cuttings of half-ripe shoots, under a bell-glass; peat and loam. Winter temp., 38° to 45°.

B. diversifo'lia (various-leaved). †. White. May. Australia. 1824. Greenhouse evergreen.

— *iberidifo'lia* (iberis-leaved). †. Purple. May. Swan River. 1840. Half-hardy annual.

— *albifo'ra* (white-flowered). †. White. Swan River.

BRACHYLE'NA. (From *brachys*, short, and *lena*, a cloak, or covering; referring to the shortness of the involucre. Nat. ord., *Composites* [Asteraceæ]. Linn., 19-*Syngenesia* 2-*Superflua*. Allied to *Tar-chonanthus*.)

Greenhouse evergreen shrub. Cuttings of half-ripe shoots, same as *Brachy'come diversifo'lia*.

B. nereifo'lia (oleander-leaved). 4. White. September. Cape of Good Hope. 1752.

BRACHYSE'MA. (From *brachys*, short, and *sema*, standard; the flowers having the standard petal short. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 10-*Decandria* 1-*Monogynia*.)

Greenhouse evergreen climbers. Seeds in March, in heat; cuttings of half-ripened shoots in summer, in sand, under a bell-glass, in a mild bot-

tom-heat; loam and peat, with a little sand. Summer temp., 50° to 65°; winter, 45° to 55°.

B. aphy'llum (leafless). Brownish-crimson. N. Holland. 1849.

— *bractea'tum* (bracted). 3. Crimson. April. Swan River. 1843.

— *hy'bridum* (hybrid). Crimson, cream. March.

— *lancea'tum* (lance-leaved). Scarlet. February. Swan River.

— *latifo'lium* (broad-leaved). 3. Crimson. May. N. Holland. 1803.

— *platy'ptera* (broad-winged-stamened). Crimson. May. Swan River. 1844.

— *præmo'rsum* (jagged-pointed). Red. N. S. Wales. 1848.

— *unda'tum* (wave-leaved). 3. Green. March. N. S. Wales. 1828.

— *villo'sum* (long-haired). 3. Crimson. March. Swan River.

BRACHYSTE'LMA. (From *brachys*, short, and *stelma*, a crown; referring to the coronal processes of the flowers. Nat. ord., *Asclepiads* [Asclepiadaceæ]. Linn., 5-*Pentandria* 2-*Digynia*.)

Greenhouse tuberous perennials, from the Cape of Good Hope. Cuttings in sandy soil, in heat; division of the roots; fibry loam. Summer temp., 60° to 75°; winter, 48° to 55°.

B. cris'sum (curled-leaved). †. Brown, yellow. September. 1829.

— *spatula'tum* (spatulate-leaved). 1. Green. June. 1826.

— *tubero'sum* (tuberous). 1‡. Purple. June. 1821.

BRACTE. A leafy appendage to the flower or its stalk, and not inaptly called the floral leaf. The most familiar example is the pale green, oblong one attached to the flower-stalk of the Lime-tree (*Tilia Europæa*).

BRAKE. *Pte'ris*.

BRAMBLE. *Ru'bus*.

BRANCHING ANNUAL STOCK. *Malco'mia mari'tima*.

BRASSA'VOLA. (Named after A. M. Brassavola, a Venetian botanist. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-*Gynandria* 1-*Monogynia*.)

Stove orchids. Divisions; best grown on blocks of wood, but will do in peat, crocks, and sphagnum. Summer temp., 70° to 90°, and moist; winter, 55° to 65°, and dry.

B. angusta'ta (narrowed). Yellowish-green. June. Demerara.

— *corda'ta* (heart-tipped). 1. White, green. May. Brazil.

— *cuculla'ta* (hooded). †. Purple and white. June. W. Ind. 1790.

— *cuspidata'ta* (spear-tipped). †. White. March. Trinidad. 1839.

— *Digbia'na* (Mr. Digby's). ‡. Yellow, white, and purple. July. Honduras. 1844.

— *e'legans* (elegant). Lilac. Antigua.

— *glau'ca* (milky-green). 1. Yellow. March. Vera Cruz. 1837.

— *grandifo'ra* (large-flowered). White. March. Honduras. 1838.

— *linæa'ta* (line-leaved). Light yellow. S. Amer. 1850.

- B. Martiana* (Dr. Martius's). 1. White. March. Berbice. 1838.
 — *nodo'sa* (knotty). 1. Yellowish-green. October. Mexico. 1838.
 — *Perrinii* (Perrin's). 1. Green. September. Rio Janeiro. 1831.
 — *retu'sa* (end-notched). White, green. March. Maracaybo.
 — *tubercula'ta* (knobbed). $\frac{1}{2}$. White. July. Botaf Bay. 1827.
 — *veno'sa* (veiny-lipped). 1. White. March. Honduras. 1839.

BRA'SSIA. (Named after Mr. Brass, a botanical traveller. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-Gynandria 1-Monogynia.)

Stove orchids. Divisions; rough turf, in pots, well drained. Those from Guatemala require less heat than those from the West Indies; water freely when growing, but give little when at rest. Temp. same as for *Brassavola*.

- B. angu'sta* (narrow-flowered). Yellow. October. Brazil. 1839.
 — *arista'ta* (awned). Yellow, brown. August. Guatemala. 1844.
 — *bi'dens* (two-toothed). Brown, yellow. May. Brazil. 1842.
 — *brachia'ta* (opposite-branched). 2. Yellowish-green and brown. September. Guatemala. 1843.
 — *cauda'ta* (long-tailed). 1. Yellow and brown. February. W. Ind. 1823.
 — *Clowe'sii* (Clowes's). Brown, yellow. August. Brazil. 1844.
 — *cochlea'ta* (spoon-lipped). 1. Green, brown. April. Demerara. 1834.
 — *gutta'ta* (blotched). Green, yellow. August. Guatemala. 1843.
 — *Lancea'na* (Lance's). $\frac{3}{4}$. Yellow-brown spotted. January. Surinam. 1843.
 — — *viridiflo'ra* (green-flowered). $\frac{3}{4}$. Green. March. Demerara. 1833.
 — *Lawrencea'na* (Mrs. Lawrence's). 1. Yellow, brown. April. Brazil. 1839.
 — *macrosta'chya* (long-spiked). 2. Green, brown. Demerara.
 — *macula'ta* (spotted-flowered). 1. Yellow-red spotted. April. Jamaica. 1806.
 — *pu'mila* (dwarf). Yellow, purple. 1844.
 — *Peruvia'na* (Peruvian). 1. Yellow, green. April. 1844.
 — *verruco'sa* (warty-lipped). Green and brown. March. Guatemala.
 — *Wray'se* (Mrs. Wray's). Yellow, green. Guatemala. 1840.

BRA'SSICA. Cabbage. (From *brasic*, the Celtic name for Cabbage. Nat. ord., *Crucifers* [Brassicaceæ]. Linn., 15-Tetradynamia.)

Seeds, chiefly spring and autumn; but at all intermediate periods during summer, according as the produce is wanted young; deep, rich, loamy soil. We shall only mention the specific names of the most useful, the cultivation of each of which will be found under its common name.

- B. na'pa-bras'sica.* Turnip-cabbage.
 — *na'pus.* Rape.
 — *oler'a'cea.* Cabbage.
 — *simbria'ta.* Borecole.
 — *cauliflo'ra.* Cauliflower.
 — *botry'tis.* Brocoli.
 — *cau'lo-ra'pa.* Köhl Rabi.

BRAVO'A. (Named after Bravo, a Mexican botanist. Nat. ord., *Amoryllids* [Amoryllidaceæ]. Linn., 6-Hexandria 1-Monogynia.)

A pretty Mexican small bulb, requiring slight protection in winter, or the greenhouse-culture of *Ixias*. Offsets; light, rich loam. Summer temp., 60° to 80°; winter, 45° to 55°.

- B. geminiflo'ra* (twin-flowered). Red. July. Mexico. 1841.

BRAZIL-NUT. *Bertholle'tia.*

BRAZIL-WOOD. *Cesalpi'nia Brasile'nsis.*

BREAD-FRUIT. *Artoca'rpus.*

BREAD-NUT. *Bro'simum.*

BREAD-ROOT. *Psora'lea escul'e'nta.*

BREAKING. A tulip's flower is *broken* when it has attained its permanent colours. A bulbous root is said to *break* when its foliage begins to be thrust forth; and a bud *breaks* when it bursts, to allow the expansion of the leaves or flowers.

BREAST-WOOD. The shoots which grow out directly from the front of branches trained as espaliers, or against walls.

BREMONTIE'RA. (Named after M. Bremon-tier. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 17-Diadelphia 4-Decandria. Allied to *Hedysarum*.)

Stove evergreen shrub. Cuttings in sand, under a glass, in heat; fibry loam and peat, with a little sand. Summer temp., 60° to 75°; winter, 50° to 55°.

- B. ammo'sylon* (sand-wood). 4. Purple. Mauritius. 1826.

BRE'XIA. (From *brevis*, rain; in reference to the protection from rain given by the large leaves of some of the species. Nat. ord., *Brexiads* [Brexiaceæ]. Linn., 5-Pentandria 1-Monogynia.)

Stove evergreen trees. Half-ripened shoots in sand, under a bell-glass, in bottom-heat; sandy peat, and a third loam. Summer temp., 60° to 75°; winter, 50° to 55°.

- B. chrysophy'lla* (golden-leaved). 30. Mauritius. 1820.

- *Madagascarie'nsis* (Madagascar). 30. Green. June. Madagascar. 1812.

- *spino'sa* (thorny). 30. Green. June. Madagascar. 1812.

BRICKS. As the gardener often may want to know how many bricks will be needed for an intended structure, it will be a guide to know that all bricks sold in England were required by statute (17 Geo. III., c. 42) to be eight and a half inches long, four inches wide, and two and a half inches thick. Pantiles, by the same authority, were required to be thirteen and a half inches long, nine and a half inches wide, and half an inch thick. But as the duty is now taken off these articles, we hope to see them made

larger, and of various forms, so as to reduce the amount of bricklayers' labour, which is one of the most costly items in the construction of garden-buildings.

BRIDGES, says Mr. Whateley, are inconsistent with the nature of a lake, but characteristic of a river. They are, on that account, used to disguise the termination of the former; but the deception has been so often practised that it no longer deceives, and a bolder aim at the same effect will now be more successful. If the end can be turned just out of sight, a bridge at some distance raises a belief, while the water beyond it removes every doubt of the continuation of the river. The supposition immediately occurs, that if a disguise had been intended, the bridge would have been placed further back, and the disregard thus shown to one deception gains credit for the other.

As a bridge is not a mere appendage to a river, but a kind of property which denotes its character, the connexion between them must be attended to. From the want of it, the single wooden arch, once much in fashion, seemed generally misplaced. Elevated, without occasion, so much above it, it was totally detached from the river, and often seen straggling in the air without a glimpse of the water to account for it; and the ostentation of it, as an ornamental object, diverted all that train of ideas which its use as a communication might suggest. The vastness of Walton Bridge cannot, without affectation, be mimicked in a garden where the magnificent idea of inducting the Thames under one arch is wanting; and where the structure itself, reduced to a narrow scale, retains no pretension to greatness. Unless the situation makes such a height necessary, or the point of view be greatly above it, or wood or rising ground, instead of sky, behind it, fill up the vacancy of the arch, it seems an effort without a cause, forced and preposterous.

The vulgar footbridge of planks, only guarded on one hand by a common rail, and supported by a few ordinary piles, is often more proper. It is perfect as a communication, because it pretends to nothing further; it is the utmost simplicity of cultivated nature; and, if the banks from which it starts be of a moderate height, its elevation preserves it from meanness. No other species of bridge so effectually characterizes a

river. It seems too plain for an ornament, too obscure for a disguise; it must be for use, it can be a passage only. It is, therefore, spoiled if adorned; it is disfigured if only painted of any other than a dusky colour. But, being thus incapable of all decoration and importance, it is often too humble for a great, and too simple for an elegant, scene. A stone bridge is generally more suitable to either; but in that, also, an extraordinary elevation is seldom becoming, unless the grandeur compensates for the distance at which it leaves the water below.

A gentle rise and easy sweep more closely preserve the relation. A certain degree of union should also be formed between the banks and the bridge, that it may seem to rise out of the banks, not barely to be imposed upon them. It ought not, generally, to swell much above their level; the parapet-wall should be brought down near to the ground, or end against some swell; and the size and the uniformity of the abutments should be broken by hillocks or thickets about them. Every expedient should be used to mark the connexion of the building, both with the ground from which it starts, and the water which it crosses.

In wild and romantic scenes may be introduced a ruined stone bridge, of which some arches may be still standing; and the loss of those which have fallen may be supplied by a few planks, with a rail thrown over the vacancy. It is a picturesque object—it suits the situation and the antiquity of the passage. The care taken to keep it still open, though the original building is decayed, the apparent necessity which thence results for a communication, give it an imposing air of reality.

BRILLANTA'ISIA. (In honour of *M. Brillant*. Nat. ord., *Acanthads* [Acanthaceæ]. Linn., 2-*Diandria* 1-*Monogynia*.)

Stove evergreen. For culture, see *BABE'ZIA*. *B. Owariensis* (Owarian). 3. Purple. March. Western Africa. 1853.

BRINING. See STEEPING.

BRI'ZA. (From *brizo*, to nod. Nat. ord., *Grasses* [Graminaceæ]. Linn., 3-*Triandria* 2-*Digynia*.)

This genus includes our Quaking-grass, or Lady's-tresses, *B. maxima* and *minor*. These, with the two others we here enumerate, are the only ones having any pretensions to being ornamental. Seed in early spring; common soil.

- B. Clusii* (Clusius's). 1½. Apetal. June. South Europe. 1820.
 — *maxima* (greatest). 1½. Apetal. June. South Europe. 1633.
 — *minor* (smaller). ½. Apetal. July. England.
 — *rubra* (red). 1. Apetal. June. South Europe. 1820.

BROADCAST is a mode of sowing now rapidly falling into disuse in the garden as well as in the field. It has no one advantage over sowing in drills, except that the work of sowing is done more expeditiously. Subsequently, the saving is all on the side of the drill-system. (*See DRILLING.*) We know of no sowing where the broadcast-mode is preferable, except in the case of grass-seeds upon lawns, and small seed-beds. The operation of broadcast-sowing is thus performed:—Take up the seed in portions in the hand, and disperse it by a horizontal movement of the arm to the extent of a semicircle, opening the hand at the same time, and scattering the seeds in the air, so as they may fall as equally as possible over the breadth taken in by the sower at once, and which is generally six feet, that being the diameter of the circle in which the hand moves through half the circumference. In sowing broadcast on the surface of his beds, and in narrow strips or borders, the seeds are dispersed, between the thumb and fingers, by horizontal movements of the hand in segments of smaller circles.

BROCOLI. (*Bra'ssica olera'cea botry'tis.*)

Varieties.—Mr. Thomson, of the Chiswick Gardens, has published the following list of these, with their synonyms, or other names, by which they are known. Those marked with an * we consider the most desirable:—

PURPLE OR GREEN BROCOLI.

1. *Early Purple Cape.—*Synonymes*, Grange's Early Cape, Purple Silesian, Purple Sicilian, Blue Cape, Violet, Nain Hâtif of the French. Comes into use during September, and until January. Sow the first and third week in April, and second week in June.

2. *Green Cape.—*Syn.*, Hardy Cape, Late Cape, Autumnal Cape, Improved Cape, Maher's Hardy Cape. Comes into use in October and November. This may be sown about the middle of April and the middle of June.

3. Green Close-headed.—*Syn.*, Late Green, Late Hardy Green, Dwarf Roman, Siberian, Late Green Siberian.

From November to the end of February. Sow about the second or third week in April.

4. Sprouting.—*Syn.*, Italian Sprouting, Grange's Early Purple Sprouting, Early Branching, Lisbon Autumn Sprouting, North's Early Purple. Very hardy, and in use from November to April, if sown at different periods from April to the end of June.

5. Danish, or Late Green.—*Syn.*, Dwarf Danish, Late Danish. Very hardy; produce in April and May; best suited for standing severe winters. Sow about the second or third week in April.

6. *Late Dwarf Purple.—*Syn.*, Dwarf Danish, Purple Cockscorn, Dwarf Swedish, Late Purple, Italian Purple, Dwarf Hardy Siberian, Dwarf Close-headed Purple. Very hardy, coming into use in May. Sow this and the next about the same time as the preceding.

7. Dwarf Brown.—*Syn.*, Late Danish, Late Dantzic, Late Brown, Lewisham Brown. Very hardy, from March to May.

SULPHUR.

8. *Portsmouth.—*Syn.*, Cream-coloured, Belvidere, Southampton, Maher's New Dwarf. In use during March and April, and is very hardy. Sow about the second or third week in April.

9. Sulphur.—*Syn.*, Brimstone, Late Brimstone, Edinburgh Sulphur, Fine Late Sulphur. In use during April and May. Sow at the same time as the preceding.

WHITE.

10. *Grange's Early Cauliflower Brocoli. — *Syn.*, Cup-leaved, Hopwood's Early White, Early Dwarf White, Invisible White, Bath White, Italian White, Marshall's Early White, Blanc d'Italie of the French. In use from the end of September to Christmas, if the weather proves mild, and is the earliest of all the White kinds. This and the next should be sown at three different seasons, viz., about the first and third weeks in April, and the second week in June.

11. Early White.—*Syn.*, Neathouse, Devonshire White, Autumn White. Differs from the preceding, in being smaller and much later. Season from November to February, if the weather prove mild.

12. *Knight's Protecting.—The hardest and largest of all the White kinds. Its season from March to the beginning of May, if planted at different times. Sow about the third week in April.

13. Spring White.—*Syn.*, Close-leaved White, Cauliflower Brocoli, Neapolitan White, Naples White, Large Late White, New Dwarf, Late White. In perfection during the months of April and May; not so hardy as the preceding, but very desirable for late use. Sow at the same time as the preceding.

14. White Danish is good, hardy, and dwarf. Sown in mid-April, it is ready the May following.

15. *Walcheren Brocoli.—White; excellent. Sown the third week in April; in season from the end of August throughout September. Sown in May, it is in season during December and January.

Time and mode of Sowing.—The times for sowing the varieties are specified under each; but we will add that, for a small family, we have found the following sowings and varieties are sufficient to keep up a supply from the beginning of October to the end of May:—

Sow Early Purple Cape and Grange's Early Cauliflower Brocoli the second week in April, and the first week in June. The produce will be fit for table during October, and until the middle of December. Sow Green Close-headed the first week in April. The heads will be ready in November, and until January ends. Sow Dwarf Brown the second week in April. It will be in production from February to end of April. Sow Sulphur-coloured and Spring White the second week of April. Their heads will be ready during the April and May following.

Each variety should be sown separately, and the sowing performed thin; the beds not more than three or four feet wide, for the convenience of weeding, which must be performed as often as weeds appear, as they are very inimical to the growth of this vegetable. The seed must not be buried more than half an inch, and the beds be netted over, to keep away the birds, which, especially in showery weather, are very destructive.

Pricking out.—The plants are fit for pricking out when they are two or three inches high. Do it during warm, showery weather, and set them six inches apart each way, and water every night until they have taken root. They must have four or five weeks' growth before they are again moved, or not until they have leaves nearly three inches in breadth.

Planting.—When planted out, they must be set, on an average, two feet

asunder each way; in summer a little wider, in autumn rather closer. Water to be given at the time of planting, and occasionally afterwards until they are established. During the droughts of summer it may be given plentifully, with the greatest advantage. They must be hoed between frequently, and the mould drawn up about their stems.

Protection in Winter.—To those crops which have to withstand the winter in the open air, salt is beneficially applied, as it preserves them from being frosted in the neck. This application preserves their roots from being worm-eaten; and so does pouring soapsuds between the rows, which application is also very beneficial to the plants. The salt should be sown over the bed, in a dry day, in autumn, at the rate of ten bushels to the acre.

To preserve the winter-standing crops from destruction by severe weather, a small trench is made, in the first week of November, at the north end of each row, in which the adjoining plant is laid so low, with its head towards the north, that the centre of its stem at the top is just level with the surface of the ground, the root being scarcely disturbed; it is then immediately watered, and its roots covered with more mould. Thus every plant is in succession reclined; and, in a few days, it is scarcely perceptible that they have been thus treated, though it certainly checks their growth. Before the arrival of snow, a small hillock must be raised round each plant, to support its leaves, and prevent their being broken. If snow accompanies severe frost, advantage should be taken of it, and the plants be heaped over with it, which will afford them an effectual protection.

To obtain Seed.—Such plants of each variety must be selected, in March or April, as most perfectly agree with their peculiar characteristics, and are not particularly forward in advancing for seed. As the stems run up, some gardeners recommend the leaves to be taken away; but this must be injurious. Mr. Wood, of Queensferry, N.B., is particularly careful that no foliage appears on the surface of the head. He always lifts his plants, and plants them in another bed, watering them abundantly, as this, he finds, prevents their degenerating or producing proud seed; and, when the

head begins to open, he cuts out its centre, and leaves only four or five of the outside shoots for bearing. The Sulphur-coloured he always finds the most difficult to obtain seed from. As the branches spread, four or six stakes should be placed at equal distances round each plant, and hooped round with string, to support them, and prevent their breaking. When the pods begin to form, water should be given repeatedly, and occasionally some thrown over the whole plant, which tends to prevent mildew. Before the pods begin to change colour, those from the extremity of every shoot must be taken away, as these yield seeds which produce plants very apt to run to seed without heading; and, by an early removal, the others are benefited. The branches ought to be gathered as soon as the pods upon them ripen. Different kinds must never be planted near each other, or they will reciprocally be crossed. The seed ripens in August or September, and it is often recommended to preserve it in the pod until wanted; but the general practice is to beat it out, and store it as soon as perfectly dry.

BRODIE'A. (Named after *J. J. Brodie*, a Scotch cryptogamist. Nat. ord., *Lily-worts* [Liliaceæ]. Linn., 3-*Triandria* 1-*Monogynia*. Allied to *Allium*.)

Frame or half-hardy small bulbs, requiring the same treatment as *Lilias*. Offsets; sandy peat. Summer temp., 50° to 70°; winter, 40°.

B. Californica (Californian). Pale brown. July. California. 1848.

— *congesta* (crowded). 1. Blue. July. Georgia. 1806.

— *grandiflora* (large-flowered). 1½. Blue. N. Amer. 1806.

BROME'LLA. (Named after *Bromel*, a Swedish botanist. Nat. ord., *Bromel-worts* [Bromeliaceæ]. Linn., 6-*Hexandria* 1-*Monogynia*. Related to the Pine Apple.)

Stove herbaceous perennials. Suckers; rich, lumpy soil, well drained. Summer temp., 60° to 85°, with moisture; winter, 50° to 60°, dryish.

B. bracteata (red-bracted). 2. Pink. September. Jamaica. 1785.

— *chrysantha* (golden-flowered). 2. Blue. Caraccas. 1819.

— *cruenta* (bloody). 2. Blue, white. August. Rio Janeiro. 1824.

— *discolor* (two-coloured). Pink. April. South Europe.

— *fastuosa* (proud). 4. Purple. August. S. Amer. 1815.

— *humilis* (low). 1. Pink. March. 1789.

— *Karatas* (Karatas). 2. Pink. W. Ind. 1739.

— *lingulata* (tongue-leaved). 1½. Yellow. May. S. Amer. 1759.

B. Pinguin (Pinguin). 3. Red. March. W. Ind. 1690.

— *sylvestris* (wood). 3. Crimson. July. S. Amer. 1820.

BROMHEA'DIA. (Named after *Sir E. F. Bromhead*, Bart. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-*Gynandria* 1-*Monandria*. Allied to *Ansellia*.)

Stove orchid. Offsets; broken pots, moss, and sandy, fibry peat; set the pot in a pan, and keep this filled with water. Summer temp., 60° to 90°; winter, 55° to 60°.

B. palustris (marsh). 3. White, yellow, and purple. June. Sumatra. 1840.

BRONGNIA'RTIA. (Named after *Brongniart*, a French botanist. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 17-*Diadelphia* 4-*Decandria*.)

In relation with such plants as *Colutea* and *Clianthus*. Greenhouse evergreen under-shrubs. Cuttings in sand, under a bell-glass, of young shoots, but firm at the base; sandy loam and fibry peat. Summer temp., 50° to 60°; winter, 40° to 45°.

B. Podalyrioides (Podalyria-like). 1. Flesh. September. North of Spain. 1827.

— *sericea* (silky). Purple. Mexico. 1843.

BROOM. See BESOM.

BROOM. *Spartium* and *Cytisus spinosus*.

BROOM (SPANISH). *Genista Hispanica*.

BROOM-CYPRESS. *Kochia scoparia*.

BROOM-RAPE. *Orobanchæ*.

BROSIMUM. Bread-nut. (From *brosimos*, edible, or good to eat; the fruit being edible. Nat. ord., *Atrocarpads* [Atrocarpaceæ]. Linn., 23-*Polygamia* 2-*Diceia*.)

The far-famed Cow-tree of South America (*Galactodeandron*), whose milky juice is as rich and wholesome as the milk of the cow, is *Brosimum utile*. Another species, *B. alicastrum*, produces nuts, which are roasted and eaten as bread; and a third species produces the beautifully-marked wood, called snake-wood. Its gummy juice is also made into India rubber. Stove evergreen shrubs and tree. Cuttings of ripe wood, in a hotbed; rich, fibry loam. Summer temp., 60° to 75°; winter, 50° to 55°.

B. alicastrum (alicastrum). 6. Apetal. Jamaica. 1776.

— *spurium* (spurious-milkwood). 6. Apetal. Jamaica. 1789.

— *utile* (useful. Cow-tree). 50. Caraccas. 1829.

BROUGHTON'IA. (Named after *Mr. Broughton*, an English botanist. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-*Gynandria* 1-*Monandria*.)

Stove orchids; division. These may be grown in crocks and fibry peat, the plant raised above the pot, but best on blocks without moss, being near a roof; high, moist temperature in summer; cooler and drier in winter. Summer temp., 60° to 85°; winter, 55° to 65°.

- B. aurea* (golden). Yellow, red. March. Mexico. 1835.
 — *nitida* (glossy). 1½. Red. June. E. Ind. 1824.
 — *sanguinea* (blood-coloured). 1½. Crimson. August. Jamaica. 1793.

BROUSSONE'IA. (Named after *Broussonet*, a French naturalist. Nat. ord., *Morads*, or *Mulberries* [Moraceæ]. Linn., 22-*Diaccia* 4-*Tetrandria*.)

In general aspect there is nothing to distinguish it from a mulberry-tree; but it is less hardy. Hardy trees; suckers and cuttings of ripened wood, inserted in autumn, and seeds sown when ripe, or kept over to the following April; good, common soil.

- J. papyrifera* (paper-bearing). 12. June. Japan. 1751.
 — *cucullata* (cowl-leaved). 12. February. French variety. 1824.
 — *dissecta* (cut-leaved). 1847.
 — *fructu-albo* (white-fruited). 12. August.
 — *macrophylla* (large-leaved).
 — *variegata* (variegated-leaved). 1846.
 — *spatulata* (spatulate-leaved). 12. June. Japan. 1824.

BROWALLIA. (Named after *J. Browallius*, bishop of Abo. Nat. ord., *Fig-worts* [Scrophulariaceæ]. Linn., 1-*Didynamia* 2-*Angiospermia*.)

Greenhouse annuals; seeds sown in a mild heat, in March; potted and re-potted, and kept in the greenhouse during summer; light, rich soil.

- B. demissa* (low). 2. Blue. August. S. Amer. 1735.
 — *elata* (tall). 1½. Blue. August. Peru. 1762.
 — *elongata* (elongated). 1½. Blue, white. July.
 — *grandiflora* (large-flowered). 2. Light yellow. June. Peru. 1829.
 — *Jamesoni* (Jameson's). 4. Orange. June. New Grenada. 1850.
 — *speciosa* (showy-flowered). 2. Purple. September. Quindiu. 1845.

BROWNIA. (Named after *Dr. Brown*. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 16-*Monadelphæa* 6-*Decandria*. Allied to *Cæsalpinia* and *Amherstia*.)

Stove evergreen shrubs. Cuttings of ripe wood in sand, under a glass, and placed in a strong bottom-heat; peat and loam. Summer temp., 60° to 85°; winter, 50° to 55°.

- B. Arizæ* (Ariza). Red. Bogota. 1843.
 — *coccinea* (scarlet). 6. Scarlet. July. W. Ind. 1793.
 — *grandiceps* (large-headed). 6. Red. Caraccas. 1829.
 — *latifolia* (broad-leaved). 6. Scarlet. Trinidad. 1824.
 — *racemosa* (clustered). 6. Rose. Caraccas. 1826.
 — *rosea* (rosy). 8. Crimson. July. Trinidad. 1828.

BROWNLOWIA. (Named after *Lady Brownlow*. Nat. ord., *Lindenblooms* [Tiliaceæ]. Linn., 13-*Polyandria* 1-*Monogynia*. Allied to *Grewia*.)

Stove tree. Cuttings of ripe shoots in heat; rich, leamy soil. Summer temp., 60° to 75°; winter, 45° to 55°.

- B. elata* (tall). 60. Yellow. E. Ind. 1820.

BROWN TAILED MOTH. *Porthesia*.

BRUCEA. (Named after *Bruce*, the African traveller. Nat. ord., *Quassiads* [Simarubaceæ]. Linn., 22-*Diaccia* 4-*Tetrandria*.)

This genus possesses that intense bitter, for which *Quassia*, the head of this small order, has long been celebrated. Stove evergreen shrubs. Ripened cuttings in sand, under a glass, in bottom-heat. Summer temp., 60° to 75°; winter, 55°.

- B. ferruginea* (rusty-ash-leaved). 6. Green. April. Abyssinia. 1775.

- *gracilis* (slender). 6. Yellow, green. E. Ind. 1820.

- *Sumatрана* (Sumatra). 6. Green. May. E. Ind. 1820.

BRUCHUS. A genus of small beetles, which confine their depredations chiefly to the seeds of leguminous plants.

Bruchus granarius. The Grain Beetle. Every one who is acquainted with the seeds of the pea and the bean must have noticed that in many of them were small,



round holes; and these occasionally are so numerous as to spoil the sample, and, indeed, render the seeds totally valueless for sowing; for not one of those thus pierced but would produce either a weak, unhealthy plant, or not vegetate at all. Those holes in the "worm-eaten" peas and beans are made by a small beetle (*Bruchus granarius*), produced from a grub, or caterpillar, which has eaten away the vital parts of the seed; and, when it has passed through the chrysalis state, and given birth to this beetle, the latter makes the hole in order to escape into the open air, there to perpetrate more mischief upon the growing crops. The body of the beetle is a dull brown; but the elytræ, or wing-covers, are black, dotted with white, but scarcely perceptibly so, unless magnified, as in our drawing. Naturally it is the size of the smaller figure; that is, scarcely two lines long. The antennæ, or feelers, are eleven-jointed, black, and thinnest near the

head, where they are also tinged with red. The head droops, the eyes are prominent, the fore-legs are rusty-coloured. This little beetle may be found upon various flowers during seven months of the year. In February it may be found on the furze-blossom, in June upon the white-thorn, and in July and August upon the spiræa and rhubarb flowers. The female pierces through the pod of the pea and bean whilst very young, and often deposits an egg in each seed. Probably the best mode of destroying this insect would be to subject the seed, as soon as harvested, for some hours, until thoroughly heated, to a temperature of 150°. This, we think, would kill the grubs without injuring the seed.

Bruchus ater. The Furze Beetle. This little insect is shown in the annexed cut of its natural size, as well as magnified.



It is black, with its elytra (wing-cases) marked with lines and lighter-coloured dots; antennæ (feelers) divided into eleven joints. The females, in February, deposit their eggs in the germs, or young seed-vessels, of the winter-blooming furze; and the same insects may be found again, in June, similarly employed upon the summer-blooming furze. The grub hatched from her eggs lives upon the seeds; and every one who has noticed this plant must be aware that its ripe seed-vessels often contain nothing but a little rough powder—a powder which is the refuse of the seeds destroyed by the grub of this insect. Another member of this family of beetles, *Bruchus pisi*, is greatly destructive to the pea crops. It is a small, brownish beetle, usually found at the time the plants are in flower, and depositing eggs in the tender seeds of legu-

minous plants, and sometimes in different kinds of corn. In these the larva—a small, white, fleshy grub—finds both a suitable habitation and an abundance of food. It undergoes all its transformations in the seed; and the perfect insect remains in it till the spring, though in fine autumns the perfect insects appear at that season also. The larvæ possess the singular instinct of never attacking the vital part of the seed till the last. We have often observed the seed-pots of Ghorozema, and other delicate and scarce leguminous plants in greenhouses, pierced by the *Bruchus pisi*. The more effectual remedy is to pull up and burn the haulm and pods altogether, and not attempt to get a crop at all.—*Cottage Gardener*, i. and iii.

BRUGMA'NSIA. (This genus is united to *Datura*.)

BRUISE. See CANKER.

BRU'NIA. (Named after *C. Brun*, a traveller in the Levant. Nat. ord., *Bruniads* [Bruniaceæ]. Linn., 5-Pentandria 1-Monogynia.)

Greenhouse evergreen shrubs and under-shrubs, from the Cape of Good Hope. Cuttings of young shoots in sand, under a hand-light, in summer; sandy peat. Summer temp., 50° to 65°; winter, 38° to 45°.

- B. como'sa* (tufted). 3. White. July. 1820.
- *e'legans* (elegant). 2. White. July. 1817.
- *ericoid'es* (heath-like). 3. White. July. 1804.
- *formo'sa* (handsome). 2. White. 1817.
- *globo'sa* (globe-like). 2. White. July. 1816.
- *la'vis* (smooth). 2. White. July. 1822.
- *macrophy'lla* (large-leaved). 1. White. July. 1815.
- *nodifl'ra* (knot-flowered). 6. White. July. 1786.

- *plumo'sa* (feathery). 2. White. July. 1824.
- *squarro'sa* (broad-spreading). 2. White. July. 1820.

- *super'ba* (superb). 4. White. June. 1791.
- *verticilla'ta* (whorled). 3. White. July. 1794.

BRUNNI'CHIA. (Named after *Brunnich*, a Danish botanist. Nat. ord., *Buckwheats* [Polygonaceæ]. Linn., 10-Decandria 2-Trigynia.)

Greenhouse evergreen climber. Cuttings root freely; fibry loam, with a little sand. Summer temp., 60° to 70°; winter, 38° to 45°.

- B. cirrho'sa* (tendrilled). 6. Pink. July. Carolina. 1787.

BRUNO'NIA. (Named after *Dr. Brown*, the celebrated English botanist. Nat. ord., *Brunoniads* [Brunoniaceæ]. Linnean class and order uncertain.)

Dr. Brown himself, and other great authorities, have been, and still are, in doubts as to the true position and affinity of the solitary genus of which this order is composed. Herbaceous perennial. Seeds and divisions; sandy loam and

fibry peat. It requires the protection of a frame or greenhouse in winter, being neat and fragrant.

B. australis (southern). 1. Blue. N. Holland. 1834.

BRUNSFELIA. (Named after *Brunfels*, a German physician. Nat. ord., *Fig-worts* [Scrophulariaceæ]. Linn., 14-*Dynamia* 2-*Angiospermia*. Allied to *Salpiglossis*.)

We have added *Franciscæa* to this genus. Stove evergreen shrubs. Cuttings in sandy soil, in a moist heat; rich, lumpy, fibry soil. Summer temp., 60° to 75°; winter, 50° to 55°.

B. acuminata (taper-pointed-leaved). 2. Purple. April. Rio Janeiro.

— *Americana* (American). 4. Pale yellow. June. W. Ind. 1735.

— — *angustifolia* (narrow-leaved). 4. Pale yellow. July. W. Ind.

— — *latifolia* (broad-leaved). 4. Pale yellow. June. W. Ind.

— *angusta* (narrow-leaved). 2. Purple. April.

— *calycina* (large-calyled). 2. Pale purple. June. Brazil. 1850.

— *eximia* (choice). 2½. Purple. June. Brazil. 1847.

— *gracilis* (slender). 2. Pale cream. June. 1847.

— *hydrangeaeformis* (hydrangea-like). 4. Purple. April. Brazil. 1840.

— *latifolia* (broad-leaved). 4. Purple. April. Rio Janeiro. 1840.

— *Lockhartii* (Lockhart's). Purple. April. W. Ind. 1840.

— *montana* (mountain). 4. White. July. S. Amer. 1820.

— *nitida* (shining). — — *Jamaicensis* (Jamaica). 5. Yellow. June. Jamaica. 1844.

— *Pohlina* (Pohl's). Blue, white). April. Brazil. 1840.

— *undulata* (wave-flowered). 4. White. June. Jamaica. 1820.

— *uniflora* (one-flowered). 3. White, purple. July. Brazil. 1826.

— *violacea* (violet-coloured). 3. Livid. July. W. Ind. 1815.

BRUNSVIGIA. (Named after the noble house of *Brunswick*. Nat. ord., *Amaryllids* [Amaryllidaceæ]. Linn., 6-*Hexandria* 1-*Monogynia*.)

This genus bears the same relation to *Amaryllis* which *Azalea* does to *Rhododendron*. It is a well-marked section of *Amaryllis* itself, when divested of "the mass of discordant plants accumulated under that name."—*Herbert*. Half-hardy bulbs, from the Cape of Good Hope. Offsets; loam and fibry peat; either in greenhouse or in a warm situation out of doors, where the bulbs, being planted deep, are secure from frost and from wet by coverings, such as glazed sashes or tarpauling; or the bulbs may be taken up at the approach of winter, and stored.

B. cilialis (hair-fringed). 1. Black. August. 1752.

— *Coranica* (Coranic poison-bulb). 1. Pink. September. 1815.

— — *pallida* (pale-flowered). 1. Pale. September. 1826.

— *disticha* (two-rowed). 1. Red. 1823.

— *fulcata* (sickle-leaved). 2. Red. May. 1774.

B. grandiflora (large-flowered). 1. Pink. August. 1827.

— *Josephina* (Josephine's). 1½. Scarlet. July. 1814.

— — *minor* (smaller). 1. Scarlet. July. 1814.

— — *striata* (streaked). 1½. Scarlet. July. 1823.

— *lucida* (shining). 1. Pink. August. 1818.

— *marginata* (red-margined). 1. Scarlet. September. 1795.

— *minor* (smaller). 2. Pink. July. 1822.

— *multiflora* (many-flowered). 1. Red. July. 1752.

— *radula* (rasp-leaved). ½. Red. June. 1790.

— *striata* (channeled). ½. Pink. July. 1823.

— *toxicaria* (poison-bulb). 1. Pink. October. 1774.

BRUSSELS SPROUTS. See *Borecole*.

BRYA. (From *bryo*, to germinate; the seeds, at times, sprouting in the pod.

Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 16-*Monadelphia* 6-*Decandria*. Allied to *Hedysarum*.)

Stove evergreen shrubs. Seeds and cuttings in hotbed; rich, fibry loam. Summer temp., 60° to 85°; winter, 50° to 55°.

B. ebenus (Jamaica ebony). 12. Yellow, green. July. Jamaica. 1713.

— *Leoneensis* (Sierra Leone). 12. Yellow, green. Sierra Leone. 1824.

BRYANTHUS. See *Menziesia*.

BRYOPHYLLUM CALYCI'NUM. A species

of *House-Leek*, chiefly regarded as a curiosity; but a single leaf laid down on a damp surface will throw out young plants all round its margin. Being a native of the East Indies, it requires a summer temperature, 60° to 85°; winter, 50° to 60°.

BU'CID. Olive Bark-tree. (From

bous, an ox; in reference to the fruit being like an ox's horn. Nat. ord., *Myrobolans* [Combretaceæ]. Linn., 10-*Decandria* 2-*Digynia*.)

B. bu'ceras furnishes bark for tanning. Stove tree. Cuttings of young, firm wood, in sand, over sandy peat, and in a moist bottom-heat; loam, and rough, sandy peat. Summer temp., 60° to 85°; winter, 55° to 60°.

B. bu'ceras (ox's-horn). 25. Yellow, white. August. Jamaica. 1793.

BUCK-BEAN. *Menyanthes*.

BUCKLER MUSTARD. *Biscute'lla*.

BUCKTHORN. *Rhamnus*.

BUCKWHEAT. *Polygonum fagopyrum*.

BUCKWHEAT-TREE. *Mylocar'yum*.

BUD. The buds are organized parts

of a plant, of an oval, round, or conical form, and containing the rudiments of

future branches, leaves, and flowers,

which remain without breaking, on producing them, until circumstances favour

their development. The same buds, accordingly, as circumstances vary, produce

either flowers or leaves. Buds spring

from the alburnum, to which they are always connected by central vessels. Buds are formed, at first, only in the axils of leaves, that is, in the angle between the leaf and the branch; but, if these buds are destroyed, what are termed *adventitious* or *latent buds* are formed, yet chiefly in the neighbourhood of the regular buds.

BUDDING is the art of making a bud unite to the stem or branch (then called the stock) of another tree or shrub, independently of its parent. The object thus attained is a rapid multiplication of that parent, and, in the case of seedlings, an earlier production of fruit than if the buds were left upon the parent. Delicate kinds are strengthened by being *worked*, as it is technically termed, upon more robust stocks, as when a tender vine is budded on the Syrian, and the Double Yellow Rose upon the common China. Variegated roses often lose their distinctive marks if grown upon their own roots. Some roses, budded upon the common briar, afford finer flowers than upon their own stems. Buds from seedling peaches and pears are earlier productive, and produce finer fruit, if budded upon a robust stock; but buds of the pear, inserted earlier than the close of August, produce branches, and not blossoms. Where the bud comes in contact with the wood of the stock, a confused line is visible, between which line and the bark of the bud new wood is produced, having solely all the characteristics of the parent of the bud. Buds of almost every species succeed with most certainty if inserted in shoots of the same year's growth; but the small walnut-buds succeed best which are taken from the base of the annual shoots, where these join the year-old wood of that from which the bud is taken. Buds are usually two years later than grafts in producing fruit; but then every bud will produce a new plant; but each graft has at least three upon it. Buds succeed more readily than grafts; and, if a graft inserted in the spring has failed, a bud may succeed in the summer of the same year. Buds are ready for removal when their shield, or bark attached to them, separates readily from the wood. This is usually in July or August, and is intimated by the buds being well-developed in the axils of the present year's leaves. Scallop-budding may be done almost at

any season. Buds should be taken from the middle of the shoot; those from its point are said to make wood too freely, and those from the base to be more unexcitable, and, consequently, less prompt to vegetate.

Stocks for budding may be much smaller than for grafting, even on the same year's shoot. Several buds may be inserted on older branches, and thus a good head be obtained sooner. On stocks of long-standing, scallop-budding is to be adopted. Just after rain, and when there is no violent wind, is a time to be preferred for budding. Whatever mode of budding is adopted, quickness in the operation is indispensable; for, if the wound in the stock or that of the bud becomes dry, the budding will fail. The bark of the stock should be cut and raised first, and, if possible, on its north side. A piece of moist bast may be twisted over the wound whilst the bud is preparing; and the moment this is done it should be inserted, and the ligature put on forthwith.

The following practical details of budding fruit-trees and roses—details applicable to all other trees and flowering-shrubs capable of being thus propagated—we have copied from the pages of *The Cottage Gardener*:—

If the bark does not *rise* well, that is, does not part freely from the wood, the buds will not succeed.

A good *budding-knife* is the first thing to be provided: any respectable nurseryman will furnish this.* Next, some really good matting: we prefer the new *Cuba bast*; but the finest of the ordinary Russian mats will answer equally well, perhaps better, provided the material is very fine and very tough.

The bast must be cut into lengths, and adapted to the size of the stocks, be they what they may. A mere novice may soon determine the length necessary, by twisting a piece round any twig of similar size, as in the act of budding.

Before describing the process itself, it will be well to speak of the condition of

* The best budding instrument we have ever seen is made by Mr. Turner, Neepsend, Sheffield. It has a budding-knife at one end, and a grooved hook at the other end. This hook being inserted in the T cut made with the knife, keeps it open, and allows the bud to be slipped easily down the groove into its place. It really supplies the budder with a third hand.

the stocks, or subjects to be operated on. Budding, as before observed, is performed at various seasons; and in very early budding, it is considered, in the majority of cases, prudential, if not absolutely necessary, to insert the whole of the shield, or bud, with its own system of wood attached. When the summer is far advanced, however, and the buds are become individually perfect, or nearly so, in their organization, the case alters; and the less of intervening matter there exists between the bud and its immediate appurtenances of petiole and bark, the better.

Budding, then, in spring or early summer, is generally accompanied, it may be presumed, by a copious current of sap. Not so, however, late summer-budding on all occasions; for the season may have been unusually warm and dry; the stock, or subject, may be short of sap, or, in other words, be beset with a paralysed root-action: all these are impediments. A copious watering, the evening previous to the process, will, however, promote the free rising of the bark, on which so much depends. In addition to this, a cloudy day is preferable to a sunny one.

In former days the chief criterion of the eligibility of a tree for the budding-process was the cessation of growth, or rather, of extension in point of length, in the stock. Such generally happens in fruit-trees—such as the peach, apricot, cherry, plum, &c.,—about the first or second week in August; the period, of course, being liable to be modified by several circumstances, as heat, drought, &c. Instead, however, of thus waiting until the eleventh hour, it is better to make an earlier commencement; and there is little occasion to delay after the middle of July has passed, unless the stocks, or scions, are subjects of late growth and excessive luxuriance.

The exact position of the bud being determined, *the incision* is made across the stock transversely, in length sufficient to create an opening for the bud. This slit forms the head of the incision, which, when the next slit is made, will form the letter **T**. In making this slit, or incision, a somewhat bold cut must be made; in fact, the point of the knife must be made to reach the surface of the wood of the stock.

The perpendicular slit is made from

the bottom upwards; and an experienced budder gives a peculiar flirt, or jerk, to the knife when he approaches the head of the **T**. This jerk at once rifts up the bark better than any slower process could do it; and the haft of the budding-knife is in a moment turned round, and the point introduced; and, by pressing it close to the wood, right and left, the bark is, as it were, ploughed up, or liberated from the wood.

All is now ready for the reception of *the bud*, which is, indeed, by most good budders, prepared first, as follows:—The cutting, or shoot, of the kind to be inserted, being wood of the current year's growth, is generally kept in a waterpot, first cutting off all the leaves: care must, however, be taken to leave most of the petiole (leaf-stalk) to handle the bud by. This, also, doubtless assists in forming a speedy union.

The bud, with its bark and a little of the wood of the tree, is then cut off in the form of a shield; and the point of the knife and thumb-nail of the right hand, by a little nice handling, are made to remove the portion of woody matter from the centre. The bud is instantly introduced beneath the bark in the **T** incision of the stock, where, as before observed, it is found in the same relation to the stock, or stem, of its new parent as existed between it and the shoot whence it sprang. This done, it is carefully and closely, but not tightly, bound with the bast. The operator generally beginning to bind at the lower end, gives an extra tug with the mat when he comes tolerably close to the lower end of the petiole. This is an old practice, and not particularly intelligible; the meaning, we suppose—if meaning it have—being, that the tightness of the ligature in that precise position impedes slightly the *returning sap*, thereby concentrating it about the bud.

Some persons employ a *grafting wax* to cover the parts where air may enter. The following mixture will make a very useful kind:—Sealing-wax, one part; mutton fat, one part; white wax, one part; honey, one-eighth part. The white wax and fat are first melted, and then the sealing-wax is to be added, gradually, in small pieces, the mixture being kept constantly stirred; lastly, the honey must be put in, just before taking it off the fire. It should be poured into

paper or tin moulds, and kept slightly agitated till it begins to congeal.

We before observed, that when the season is late, and the bark rises somewhat badly, it may be excited to rise. A liberal watering with liquid-manure, of the temperature of 90°, the day before the operation, will, in general, facilitate the proceeding. When the bud, or shield, after the wood is removed, appears hollow at the bud part, it is commonly rejected. Such are not always barren; but they are apt to lie dormant for a year or two.

When a choice of position offers itself, we prefer the shady side of the stock. It is of more importance, however, to select a clear portion of the stem, free from knots, although some fancy the bud takes better if placed in a position from whence a natural bud has been removed. It should be taken as a maxim, that only those buds should be selected, the leaves of which have become fully developed; the leaf, also, should, if possible, be unblemished.

Cloudy weather is, in all cases, to be preferred to sunny periods.

For budding *Roses*, and, indeed, for all budding, the best time of the day is either early in the morning, at least as early as seven o'clock, A.M., or after three o'clock in the afternoon; cloudy, moist days are most suitable. Cut off the head of your stocks, and all the side-branches to three, that is, for standards. For dwarfs, cut off to within six inches of the ground; then, with the knife, make an incision on the upper side of the young side-branches, as close to the main stem as possible. The incision should be about an inch long, lengthwise on the branch. Cut a cross just at the top of this incision, in a direction somewhat more slanting than in the annexed drawing (fig. 2). Then take off the bud, previously cutting off the leaf, leaving part of the leaf-stalk. Cut away with the bud a portion of the bark from the parent stem, which is technically called *the shield of the bud*, and a portion of wood with it. This bud, and the bark and wood with it, should be, altogether, rather more than three-quarters of an inch long. Turn the bud over between your finger and thumb, and dexterously take out the greater part of the wood; but be careful to leave the wood full in the eye of the bud. Then raise one side

of the bark of the incision, in the shape of a **T** made in the stock, and with the ivory handle of the budding-knife slip in one side of the bark attached to the bud, then turn your knife, and lift up



1. The bud, with the wood taken out, and ready to be put into the stock side-branches.
2. The branch, or stem, with the incisions made, previously to raising the bark.
3. The bark raised for receiving the shield of the bud.
4. The bud fitted into its place.
5. The bandage put over the parts. It is here represented as done with a shred of bass-mat; but stout worsted thread is better.

the other side of the incision, and the bud will drop into its place. Press the bark of the bud to the farther end of the incision; and if any projects beyond the cross incision on the stock cut it off. Then tie with worsted neatly, and the operation is complete. A laurel-leaf fastened at each end by a ligature round the stock, so as to arch over the bud, will complete the arrangement; and thus the

sun's rays, the air, and wet will be most effectually excluded, the admittance of any one of which is fatal to the union of the bud with the stock. We feel it almost impossible to give instruction to be understood, in words only, for such a complex operation. We have, therefore, given the preceding woodcuts, to show all the several parts of this interesting process.

BUT'DOLEA. (Named after *A. Buddle*, an English botanist. Nat. ord., *Figworts* [*Scrophulariaceæ*]. Linn., 4-*Tetrandria* 1-*Monogynia*.)

Stove evergreen shrubs, except where otherwise specified. *B. globosa*, the only hardy species, requires a dry, sheltered situation in the north of the island. Seeds are sometimes procured in the south of England, and should be sown in the spring following. Plants are also easily procured from well-ripened cuttings, placed under hand-lights, in September, and slightly protected during winter frosts. The greenhouse and stove species may all be propagated freely from cuttings; and, for general management, the latter merely require a higher temperature than the former.

B. America'na (American). 10. Yellow. August. Mexico. 1826.

— *Brazilie'nsis* (Brazilian). 10. Orange. Brazil. 1822.

— *connata* (base-joined-leaved). 5. Orange. May. Peru. 1826.

— *crispa* (crisp-leaved). 13. Purple. March. Himalaya.

— *diversifolia* (various-leaved). 6. Java. 1823.

— *globosa* (globe-flowered). 15. Orange. May. Chili. 1774. Hardy herbaceous.

— *heterophylla* (variable-leaved). 10. Yellow. May. S. Amer.

— *Lindleyana* (Lindley's). 6. Violet. September. China. 1844. Greenhouse evergreen.

— *Madagascariensis* (Madagascar). 10. Orange. Madeira. 1824.

— *Neemda* (Neemda). 15. White. June. Nepaul. 1824.

— *occidentalis* (western). White. Peru. 1730. Greenhouse evergreen.

— *paniculata* (panicled). 14. White. August. Nepaul. 1823.

— *saligna* (willow-like). 6. White. August. Cape of Good Hope. 1816. Greenhouse evergreen.

— *salifolia* (sage-leaved). 3. Crimson. August. Cape of Good Hope. 1760. Greenhouse evergreen.

— *thyrsoides* (thyrsé-flowered). Yellow. S. Amer. 1823.

BUFF-TIP MOTH. *Hemmatophora*.

BUFFALO CLOVER. *Trifolium Pennsylvanicum*.

BOUGAINVILLEA. (Named after the French navigator, *Bougainville*. Nat. ord., *Nyctagos* [*Nyctaginaceæ*]. Linn., 8-*Oc-tandria* 1-*Monogynia*.)

B. spectabilis is a scrambling plant, with beautiful rose-coloured bractes, in cones, like those of

the *Hop*. It flowers freely at Paris; but no English gardener has yet succeeded in flowering it: we keep it too hot. Stove plants. Cuttings in sand, and in bottom-heat; sandy, fibry loam. Summer temp., 60° to 75°; winter, 50° to 60°.

B. spectabilis (showy). 15. Pink. S. Amer. 1829.

— *splendens* (shining). S. Amer. 1848.

— *vitifolia* (vine-leaved). 1848.

BUGLE. *A'juga*.

BUGLOSS. *Anchu'sa*.

BUGWORT. *Cimicifuga*.

BUISSON is a fruit-tree on a very low stem, and with a head closely pruned.

BULB. A bulb is really an underground bud. Its fibrous or real roots die annually; but the bulb remains stored with elaborated sap, and retaining the vital powers of the plant, ready for reproduction at the appropriate season. Besides root bulbs, (as are the onion, crocus, &c.,) there are stem, or caulinary bulbs, equally efficient for propagation.

The stem-bulb consists of a number of small scales closely compacted together in an ovate or conical form, enclosing the rudiments of a future plant, and originating, sometimes in the axil of the leaves, as in *Dentaria bulbifera* and several Lily-worts, and sometimes at the base of the umbel of flowers, as in *Allium carinatum* and others, in both which cases it is nourished by the parent plant till it has reached maturity, at which period the bond of connexion is dissolved, and the bulb falls to the ground, endowed with the power of striking root in the soil by sending out fibres from the base, and so converting itself into a new individual.

Every bulbous-rooted plant has its management given in its proper place; but there are a few rules of general applicability. They should be moved, where necessary, whilst in a state of rest. This occurs to the summer-flowering bulbs in autumn, and to the autumn-flowering in spring. Many require to be taken up annually, or, at farthest, every second or third year, to remove the accumulated offsets. No bulb should be kept long out of the ground; and, even during the time it is necessarily so kept, it should be prevented from drying by burying it in sand.

BULBINE. (From *bulbos*, a bulb. Nat. ord., *Lilyworts* [*Liliaceæ*]. Linn., 6-*Hexandria* 1-*Monogynia*.)

This is now united to *Anthericum*. The name *Bulbine*, also, is a misnomer; for many more have the herbaceous habit of *Anthericum* than that of true bulbs. Bulb species by offsets; herbaceous plants, suckers, and divisions; the shrubby species, by cuttings under a hand-

glass. Sand, loam. For greenhouse species, summer temp., 50° to 70°; winter, 40° to 45°.

- B. aloides* (aloe-like). 1. Yellow. June. Cape of Good Hope. 1732.
 — *a'nua* (annual). 4. Yellow. May. Cape of Good Hope. 1731.
 — *asphodeloides* (asphodel-like). 2. White. July. Cape of Good Hope. 1759.
 — *australis* (southern). 1. Yellow. June. N. Holland. 1820.
 — *bisulcata* (two-furrowed). 1. Yellow. November. Cape of Good Hope. 1823.
 — *ciliata* (hair-fringed). 2. Yellow. May. Cape of Good Hope. 1823.
 — *floribunda* (many-flowered). 1. Yellow, green. September. Cape of Good Hope. 1830.
 — *frutescens* (shrubby). 2. Yellow. June. Cape of Good Hope. 1702.
 — *glauca* (milky-green). 2. White. Chili. 1828.
 — *graminea* (grass-leaved). 1. Yellow. May. Cape of Good Hope. 1824.
 — *hispida* (bristly). 1. White. May. Cape of Good Hope. 1774.
 — *latifolia* (broad-leaved). 2. White. July. Cape of Good Hope. 1812.
 — *longiscapa* (long-flower-stemmed). 1. Yellow. June. Cape of Good Hope. 1759.
 — *mesembryanthoides* (mesembryanthemum-like). 4. Yellow. May. Cape of Good Hope. 1822.
 — *nutans* (nodding). 1. Yellow. July. Cape of Good Hope. 1820.
 — *præmorsa* (bitten-off). 1. Yellow. June. Cape of Good Hope. 1818.
 — *pugioniformis* (dagger-formed). 1. Yellow. May. Cape of Good Hope. 1793.
 — *rostrata* (beaked). 2. Yellow. June. Cape of Good Hope. 1812.
 — *sabra* (rough). 1. Yellow. June. Cape of Good Hope. 1825.
 — *semibarbata* (half-bearded). 1. Yellow. July. Cape of Good Hope. 1820.
 — *suaavis* (sweet). Yellow. May. N. Holland. 1836.
 — *triquetra* (three-sided). 1. Yellow. June. Cape of Good Hope. 1825.

BULBOCIDIUM. (From *bolbos*, a bulb, and *kodion*, wool; referring to the woolly covering of the bulbs. Nat. ord., *Melanthus* [Melanthaceæ]. Linn., 6-*Hexandria* 1-*Monogynia*.)

Small hardy bulbs, having the aspect of *Crocus*. Offsets; sandy loam, well drained.

- B. verum* (spring). 4. Purple. February. Spain. 1629.
 — *versicolor* (party-coloured). 4. Purple. August. Crimea. 1820.

BULBOSTYLES. (From *bolbos*, a bulb, and *stylos*, the style. Nat. ord., *Compositæ* [Asteraceæ]. Linn., 19-*Syngenesia* 1-*Æqualis*.)

Stove plants. Cuttings in sand, with bottom-heat, under a bell-glass; loam and peat.

- B. Cavanillei* (Cavanille's). 14. Purple. August. Mexico. 1827. Evergreen under-shrub.
 — *pendula* (hanging-down). Yellow. August. Mexico. 1832.
 — *veronicaefolia* (speedwell-leaved). 14. Blue. August. Mexico. 1825.

BULLACE-TREE. *Prunus insititia*.

BULL GRAPES. *Vitis rotundifolia*.

BUNCHO'SIA. (From *bunchos*, coffee; the seeds resembling coffee-berries. Nat. ord., *Malpighiads* [Malpighiaceæ]. Linn., 10-*Decandria* 1-*Monogynia*.)

Stove shrub and tree; cuttings of ripe shoots under a glass, in moist bottom-heat; sandy loam and peat. Summer temp., 60° to 85°; winter, 50° to 55°.

- B. argentea* (silvery). 10. Yellow. July. Caccas. 1810.
 — *canescens* (hoary). 20. Yellow. July. W. Ind. 1742.
 — *glandulifera* (gland-bearing). 10. Yellow. April. W. Ind. 1806.
 — *nitida* (shining). 10. Red. July. St. Domingo. 1800.
 — *odora* (scented). 10. Yellow. July. Carthage. 1806.
 — *paniculata* (panicked). 10. Purple. June. Jamaica. 1820.

BURLEUM. Hare's-Ear. (From *bous*, an ox, and *pleuron*, a side; the leaves, if eaten, are supposed to swell cattle. Nat. ord., *Umbellifers* [Umbellaceæ]. Linn., 5-*Pentandria* 2-*Digynia*.)

Hardy annuals and herbaceous perennials, except where otherwise specified. Seed of the annuals in common soil, in March and April; divisions of herbaceous plants in autumn or spring; cuttings, or divisions of greenhouse species, in March and April; dry, sandy loam.

HARDY ANNUALS.

- B. glaucum* (milky-green). 4. Green, yellow. July. South Europe. 1819.
 — *gracile* (slender). 4. Green, yellow. July. Caucasus. 1820.
 — *juveum* (rush-leaved). 1. Green, yellow. July. South Europe. 1772.
 — *lanceolatum* (lance-leaved). 1. Green, yellow. July. Tauria. 1820. Biennial.
 — *oppositifolium* (opposite-leaved). 1. Green, yellow. July. Pyrenees. 1819.
 — *Pollichii* (Pollich's). 1. Green, yellow. July. Palestine. 1818.
 — *protractum* (protracted). 4. Yellowish. July. Portugal. 1824. Twiner.
 — *rotundifolium* (round-leaved). 2. Green, yellow. June. Spain.
 — *semi-compositum* (semi-compound). 4. Green, yellow. July. Spain. 1778.
 — *subovatum* (rather oval-leaved). 4. Yellow. June. Spain. 1819.
 — *tenuissimum* (slenderest). 4. Green, yellow. July. England.
 — *trifidum* (three-cleft). 24. Yellow. July. Italy. 1824. Biennial.

HARDY PERENNIALS.

- B. aristatum* (awned). Blush. June. Britain.
 — *avreum* (golden). 1. Yellow. May. Siberia. 1820.
 — *coriaceum* (leathery). Striped. August. Gibraltar. 1784.
 — *falcatum* (sickle-leaved). 4. Green, yellow. August. Germany. 1739.
 — *frutescens* (small-shrubby). 2. Yellow. August. Spain. 1752.
 — *graminifolium* (grass-leaved). 4. Green, yellow. June. Switzerland. 1763.

- B. longifolium* (long-leaved). 3. Green, yellow. June. Switzerland. 1713.
 — *multinerve* (many-nerved). 3. Yellowish. Altai.
 — *paniculatum* (panicled). 1½. Yellow. July. Spain. 1824.
 — *petraeum* (rock). 1½. Green, yellow. June. Switzerland. 1768.
 — *polyphyllum* (many-leaved). 1. Green, yellow. May. Caucasus. 1823.
 — *scorzoneraefolium* (scorzonera-leaved). Yellow-streaked. June. Germany. 1818.
 — *spinosum* (spined). Yellow. July. Spain. 1752. Evergreen shrub.

GREENHOUSE.

- B. canescens* (hoary). 5. Yellow. August. Barbary. 1809. Evergreen shrub.
 — *fruticosum* (shrubby). 3. Yellow. July. South Europe. 1896. Evergreen half-hardy.
 — *Gibraltarica* (Gibraltar). Yellow. June. Gibraltar. 1784. Evergreen half-hardy.
 — *plantaginæum* (plantain-leaved). 3. Yellow. July. Mount Atlas. 1810. Evergreen half-hardy.

BUPHTALMUM. Ox-eye. (From *bous*, an ox, and *ophthalmos*, eye; the disk of the flower ox-eye-like. Nat. ord., *Compositæ* [*Asteraceæ*]. Linn., 19-*Syn-genesia* 2-*Superflua*.)

Seed of annuals in border, in April; division of herbaceous perennials in March; cuttings in sand, under a bell-glass, of the greenhouse evergreen shrubs; the latter require peat and loam, and the usual greenhouse treatment.

HARDY.

- B. aquaticum* (aquatic). ½. Yellow. July. South Europe. 1731. Annual.
 — *grandiflorum* (large-flowered). 1½. Yellow. August. Austria. 1722. Herbaceous perennial.
 — *salicifolium* (willow-leaved). 1½. Yellow. September. Austria. 1759. Herbaceous perennial.
 — *speciosissimum* (showiest). 2. Yellow. July. South Europe. 1826. Herbaceous perennial.
 — *spinosum* (thorny). 3. Yellow. July. Spain. 1570. Annual.

GREENHOUSE.

- B. lævigatum* (smooth-leaved). 4. Yellow. July. Teneriffe. 1800. Evergreen shrub.
 — *maritimum* (sea). 1. Yellow. August. Sicily. 1640. Half-hardy herbaceous perennial.
 — *sericeum* (silky). 4. Yellow. June. Canaries. 1779. Evergreen shrub.
 — *stenophyllum* (narrow-leaved). 3. Yellow. June. Canaries. 1818. Evergreen shrub.

BURCHARDIA. (Named after *H. Burchard, M.D.* Nat. ord., *Melanthes* [*Melanthaceæ*]. Linn., 6-*Hexandria* 3-*Trigynia*. Allied to *Veratrum*.)

Greenhouse herbaceous perennial; offsets and divisions; sandy peat. Winter temp., 38° to 40°. *B. umbellata* (umbellate). 2. White, green. August. N. Holland. 1820.

BURCHELLIA. (Named after *Burchell*, an African traveller. Nat. ord., *Cincho-*

nads [*Cinchoniaceæ*]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Gardenia*.)

Stove evergreen shrubs, from Cape of Good Hope. Cuttings of young shoots, getting firm at the base, in April and May; fibry loam and sandy peat. Summer temp., 60° to 75°; winter, 50° to 55°.

- B. bubalina* (buffalo). 3. Scarlet. May. 1818.
 — *Capeensis* (Cape). 3. Scarlet. March.

BURLINGTONIA. (Named after the *Countess of Burlington*. Nat. ord., *Orchids* [*Orchidaceæ*]. Linn., 20-*Gynandria* 1-*Monogynia*.)

Stove orchids. Divisions fastened to blocks of wood, with a little moss attached. High temperature and moist atmosphere when growing; cool and dry when in a state of rest. Summer temp., 65° to 90°; winter, 55°.

- B. candida* (snow-white). 1. White. April. Demerara. 1834.
 — *decora* (neat). Pink and white. November. Brazil.
 — *maculata* (spotted). ½. Yellow and brown spots. May. Brazil. 1837.
 — *rigida* (stiff-stemmed). 1. Purplish-pink-spotted. April. Brazil. 1838.
 — *venusta* (beautiful). White. March. Brazil.

BURN ONION. See **POTATO ONION.**

BURNET. (*Poterium sanguisorba*.) Small, or Upland Burnet. Used in cool tankards, soups, and salads.

Soil and Situation.—It delights in a dry, unshaded, poor soil, abounding in calcareous matter, with a dressing of bricklayers' rubbish, or fragments of chalk. A small bed will be sufficient for the supply of a family.

Propagation is either by seed or by slips and partings of the roots. The seed sown towards the close of February, if open weather, and until the close of May. But the best time is in autumn, as soon as it is ripe; for, if kept until the spring, it will often fail entirely, or lie in the ground until the same season of the following year, without vegetating. Sow in drills, six inches apart, thin, and not buried more than half an inch. Keep clear of weeds. When two or three inches high, thin to six inches apart, and those removed place in rows at the same distance, in a poor, shady border, water being given occasionally until they have taken root, after which they will require no further attention until the autumn, when they must be removed to their final station, in rows a foot apart. When established, the only attention requisite is to cut down their stems occasionally in summer, to promote the production of young shoots, and, in autumn, to have the decayed stems and shoots cleared away.

If propagated by partings of the roots, the best time is in September and October. They are planted at once where they are to remain, and only require occasional watering until established.

To obtain Seed some of the plants must be left ungathered from, and allowed to shoot up early in the summer. They flower in July, and ripen abundance of seed in the autumn.

BURNING BUSH. *Euo'nymus Americanus*.

BURSA'RIA. (Named from *bursa*, a pouch. Nat. ord., *Pittosporads* [*Pittosporaceæ*]. Linn., 5-Pentandria 1-Monogynia.)

Greenhouse evergreen shrub. Cuttings of young shoots in sand, under a bell-glass; sandy peat and fibry loam. Winter temp., 40° to 45°.

B. spinosa (thorny). 10. White. October. N. S. Wales. 1793.

BUR'SERA. (Named after *Burser*, an Italian botanist. Nat. ord., *Amyrids* [*Amyridaceæ*]. Linn., 23-Polygamia 2-Diœcia.)

Stove trees; cuttings under a glass, with bottom-heat; loam and peat. Summer temp., 60° to 85°; winter, 50° to 55°.

B. gummi'fera (gum-bearing). 20. White, green. W. Ind. 1690.

— *serrata* (saw-edged-leaved). 30. E. Ind. 1818.

BURTO'NIA. (Named after *D. Burton*, a collector for the Kew Gardens. Nat. ord., *Leguminous Plants* [*Fabaceæ*]. Linn., 10-Decandria 1-Monogynia. Allied to *Pultenæa*.)

Greenhouse evergreen under-shrubs; seeds in March and April, in sandy peat; cuttings of half-ripened shoots in sand, under a bell-glass; fibry peat, sandy loam, and pieces of charcoal, mixed with soil and drainage. Summer temp., 60° to 70°; winter, 45° to 50°.

B. Brunioi'des (*Brunia*-like). 1½. Yellow. June. N. Holland. 1844.

— *conferta* (clustered-flowered). 2. Violet. July. N. Holland. 1830.

— *minor* (smaller). ½. Yellow. May. N. Holland. 1812.

— *pulchella* (beautiful). 2. Purple. April. Swan River. 1846.

— *sca'bra* (rough-leaved). 1. Yellow. June. N. Holland. 1803.

— *scissilifo'ra* (stalkless-flowered). ½. Yellow. June. N. Holland. 1824.

— *villo'sa* (long-haired). 2. Purple. May. Swan River. 1844.

BUSHEL. See BASKET.

BUTCHER'S BROOM. *Ruscus*.

BUTEA. (Named after *John Earl of Bute*. Nat. ord., *Leguminous Plants* [*Fabaceæ*]. Linn., 17-Diadelphica 1-Pentandria. Allied to the Coral-tree.)

Stove evergreen trees; cuttings of shoots,

young, but firm, in sand, in a moist bottom-heat, under a glass, removed, or air given, during the night; loam and peat. Summer temp., 60° to 75°; winter, 50° to 55°.

B. frondosa (leafy). 30. Scarlet. E. Ind. 1796. — *parviflora* (small-flowered). 20. Scarlet. Comandiel. 1818.

— *superba* (superb). 30. Scarlet. E. Ind. 1798.

BUTOMUS. Flowering Rush. (From *bous*, an ox, and *temno*, to cut; in reference to its acrid juice, causing the mouth to bleed. Nat. ord., *Butomads* [*Butomaceæ*]. Linn., 9-Enneandria 3-Hexagynia.)

Hardy perennial aquatics; divisions; rich loam, in water.

B. latifolius (broad-leaved). 1. White. June. Nepal. 1823.

— *umbellatus* (umbelled). 2. Pink. June. Britain.

BUTTER NUT. *Caryocarp* and *Juglans cinerea*.

BUTTER AND EGGS. *Narcissus incomparabilis*.

BUTTER AND TALLOW TREE. *Pentadesma*.

Ba'ssia.

BUTTERFLY PLANT. *Oncidium papilio*.

Pinguicula.

BUTTON FLOWER. *Gomphia*.

BUTTON-TREE. *Conocarpus*.

BUTTON WEED. *Spermacoce*.

BUTTON WOOD. *Cephalanthus*.

BU'XUS. Box-tree. (From *pyknos*, dense; referring to the hardness of the wood. Nat. ord., *Spurge'worts* [*Euphorbiaceæ*]. Linn., 21-Monœcia 4-Tetrandria.)

There is a weeping Box-tree in the gardens at Shrubland Park, with branches as pendulous as those of the Weeping Ash. Hardy and greenhouse shrubs and trees; seed sown in light, well-drained soil, as soon as ripe; cuttings, from four to six inches in length, of the young shoots, inserted in a shady place in August and September; layers of either old or young wood; division of the variety *suffruticosa*, generally used as edgings to walks; cuttings of *Balea'rica* will require protection in winter. Chinese and New Holland species require a cold pit or greenhouse in winter.

B. australis (southern). 6. N. Holland. 1820.

— *Balea'rica* (*Balea'rica*). 8. Yellow, green. July. Minorca. 1780.

— *Chinensis* (Chinese). 3. Yellow, green. October. China. 1802.

— *sempervirens* (common evergreen). 8. Yellow, green. April. England.

— *angustifolia* (narrow-leaved). 8. Yellow, green. April.

— *arborescens* (tree-like). 30. Yellow, green. May. Britain.

— *argentea* (silver-variegated). 30. Yellow, green. May. Britain.

— *au'rea* (golden-variegated). 30. Yellow, green. May. Britain.

— *marginata* (yellow-edged). 30. Yellow, green. April. Britain.

— *myrtifolia* (myrtle-leaved). 8. Yellow, green. April. Britain.

- B. sempervirens suffruticosa* (sub-shrubby). 1. Yellow, green.
 — *variegata* (variegated-leaved). 30. Yellow, green. May. Britain.

BYBLIS. (A classical name, after *Byblis*, daughter of Miletus. Nat. ord., *Sundews* [Droseraceæ]. Linn., 5-Pentandria 5-Pentagynia.)

Greenhouse aquatic; seeds; fibry, black peat immersed in water. Summer temp., 50° to 70°; winter, 45° to 55°.

- B. liniflora* (flax-flowered). 4. Blue. May. N. Holland. 1800.

BYRSO'NIMA. (From *byrsa*, a hide; in reference to the tanning properties of the genus. Nat. ord., *Malpighiads* [Malpighiaceæ]. Linn., 10-Decandria 3-Trigynia.)

In Brazil the bark of these trees is in common use by the tanners, under the name of *murice*. The fruit of some of them is eaten in the West Indies. Stove evergreens; cuttings of half-ripened shoots in sandy peat, under a bell-glass, and in a moist bottom-heat; loam and peat. Summer temp., 60° to 80°; winter, 55° to 60°.

- B. altissima* (tallest). 60. White. July. Guiana. 1820.

- *chrysophylla* (golden-leaved). 10. Yellow. August. Orinoco. 1823.

- *coriacea* (leathery-leaved). 30. White. June. Jamaica. 1814.

- *crassifolia* (thick-leaved). 20. Yellow. July. Guiana. 1793.

- *laurifolia* (laurel-leaved). 10. Yellow. July. Cumana. 1824.

- *luccida* (shining-leaved). 6. Pink. July. W. Ind. 1759.

- *Mourea* (Moureira). 20. Yellow. August. S. Amer. 1823.

- *nervea* (full-nerved). 8. Yellow. July. Brazil. 1820.

- *pallida* (pale). 4. Pale. Cayenne. 1820.

- *reticulata* (netted). 10. Purple, yellow. July. Cayenne. 1823.

- *spicata* (spiked). 6. Yellow. August. Antilles. 1810.

- *verbascifolia* (verbascum-leaved). 6. Pale red. July. Guiana. 1810.

- *volubilis* (twining). 10. Yellow. August. W. Ind. 1793. Twiner.

BYSTROPO'GON. (From *byo*, to close, and *pogon*, a beard; in reference to the throat of the flower being closed up with hairs. Nat. ord., *Labiates* [Lamiaceæ]. Linn., 14-Didynamia 1-Gynnospermia. Allied to Thyme.)

Greenhouse evergreen under-shrub; cuttings of stubby side-shoots in sandy soil, under a glass; peat and loam. Summer temp., 50° to 70°; winter, 40° to 45°.

- B. Canariensis* (Canary). 1½. Pale purple. July. Canaries. 1714.

- *origanifolius* (origanum-leaved). 1½. Pale purple. July. Canaries. 1815.

- *plumosus* (feathery-flowered). 1½. Pale purple. June. Canaries. 1779.

- *punctatus* (dotted). 1½. Pale purple. June. Madeira. 1775.

BYTNERIA. (Named after *Buttner*, a German professor. Nat. ord., *Bytne-*

riads [Bytneriaceæ]. Linn., 5-Pentandria 1-Monogynia.)

Cuttings; the first two species require the greenhouse, the others the routine of the plant-stove.

- B. dasyphylla* (thick-leaved). 3. White. June. Van Diemen's Land. 1780.

- *Hermannifolia* (Hermannia-leaved). 4. White. July. N. Holland. 1823.

- *microphylla* (small-leaved). 5. White, purple. S. Amer. 1816.

- *sca'brea* (rough-leaved). 6. Purple. July. W. Ind. 1793.

C.

CABARET. See A'SARUM.

CABBAGE. *Brassica oleracea*.

Varieties.—But few should be planted of the early varieties, as they soon harden and burst; but the Large York, and others that are mentioned in the middle class, though not far behind the others in quick cabbaging, continue long in a state fit for the table.

For First Crops.—Early Dwarf, Early Fine York, Early Dwarf Sugar-Loaf, Battersea, Imperial, East Ham.

Midsummer Crops.—Large Early York, Large Sugar-Loaf, Wheeler's Nonpareil, Atkinson's Matchless, Shilling's Queen. Penton—this is valuable in late summer, when other varieties are strongly tasted. Antwerp, Russian—to have this in perfection, the seed must be had from abroad, as it soon degenerates in this country. Early London Hollow. Musk is excellent at any period, but is apt to perish in frosty weather. Couve Tronchuda; for its leaves and stalks used as sea-kale.

For Autumn Crops.—Pomeranian, Large Hollow Sugar-Loaf, Large Oblong Hollow, Long-sided Hollow, and any of the preceding. Red Dutch for pickling (*B. oleracea rubra*), Large Round Winter, Great Drumhead. Great Pound Scotch, or Strasburg, employed for sour kront in January.

Times of Sowing.—Some gardeners sow almost monthly, and employ many varieties; but we only employ Wheeler's Nonpareil, Shilling's Queen, and Atkinson's Matchless, of one of which a sowing should be made about the 21st of July; for final planting out, early in September; many plants of which will be turning in between Michaelmas and Christmas, and in early spring. The second and most general time of sowing, to raise plants for almost the whole year's supply, and of any kind, including the Red Dutch and its varieties, is from the 6th to the 12th

of August, of which the seedlings may remain in the seed-bed all the winter, if not too thick; or any number may be finally planted out into the open quarters from October to November, or pricked out into nursery-beds, banks, &c., so as to have a good stock of plants for final planting out whenever favourable opportunities offer.

Should the winter be so severe as to have destroyed many of the autumn-sown plants, then early spring sowing becomes of importance. Sow towards the middle or end of January, so as to have good plants for final planting out, if the weather be mild and open, about the end of February. To effect this, either a pinch of seed may be sown in pans or boxes, and placed in some steady-heated structure; and, when the seedlings are up large enough to prick out, have a warm border, or very gentle hotbed, ready to prick them out upon, to be protected either by a little glass or hoop and mat. To sow on a larger scale, make up gentle hotbeds, to be protected with either glass, *which is best*, or mats: the pricking out attend to as before-mentioned. Also, any kind may be sown in the open, warm border, in February and March, should the August sowing have been destroyed. The Couve Tronchuda should be sown from the first of March to the end of April. One very important point is, that all pricked-out plants should invariably be lifted, with either a spade, trowel, or fork, out of the pricked-out beds, whether in frames or otherwise, so as to secure their young roots. Plants out of the seed-bed seldom need this precaution.

Mode of Sowing.—The seed is inserted rather thin, about a quarter of an inch deep, and occasionally watered until the plants are well above-ground; and the waterings in summer may afterwards be beneficially repeated two or three times a week, until they are ready for removal, if dry, hot weather continues. The seedlings are pricked out in rows four or five inches asunder each way; shaded and watered until completely established.

The Soil cannot be made too rich for cabbageworts at any time.

Planting.—We never make but two plantings in the year; one from the 21st of July sowing, which planting is made during the first fortnight of September; and the second planting we make in the spring, towards the end of February or

beginning of March. This last planting is either made from plants raised in August, or, if the winter destroyed that sowing, it is made from early spring sowings, our soil being made so rich for these two plantings that we never want for cole worts, or even young cabbage, which are produced after the principal heads have been cut away.

Cutting Cabbages.—If young sprouts are required, the side-leaves should be left on for about five days after the principal head is cut. The side-sprouts will be found to put forth very much the stronger and quicker for the leaves being thus left.

Planting.—Plant in rows, from one and a half to two and a half feet asunder each way, the smaller early kinds being planted the closest. The Red Cabbage, the principal plantation of which should be made in March, for pickling in September, is benefited by having the distances enlarged to three feet. They must be well watered at the time of removal, and until fully established. The best mode of applying the water is to make the hole with the dibble, and pour in about a quart *before* inserting the plant. Frequently hoe, to keep under the weeds; and as soon as their growth permits the earth should be drawn round the stems. To promote the cabbaging of the plants, it is useful to draw the leaves together with a shred of bass mat, which forwards it about a fortnight. The stems of the summer and autumn crops, if left after the main head has been cut, will produce numerous sprouts during those seasons, and also throughout the winter.

To obtain Seed.—In October, which is the preferable season, and from thence until the close of February, select some of the finest and best cabbage-plants. Have the large, outer leaves removed, and then insert them up to their heads in rows, three feet asunder each way. Each variety must be planted as far from any other as possible, as, indeed, from every other species of cabbagewort; and this precaution applies equally to the whole tribe.

Frame Seedlings.—The heat must never exceed 60°, nor sink more than two or three degrees beneath 50°, which is the most favourable minimum. Air should be admitted freely in the day, and the glasses covered, as necessity requires, at night with matting.

Coleworts or *Collets*, merely signify cabbages eaten young, or previous to their hearts becoming firm, the genuine Colewort, or Dorsetshire Kale, being nearly extinct.

The observations upon transplanting, and the directions for cultivating cabbages, apply, without any modification, to coleworts; but the distance at which the plants may be set is much less. If the rows are a foot apart, and the plants seven or eight inches distant from each other, an abundant space is allowed. They may be eaten when the leaves are five or six inches in breadth. The most preferable mode of taking them is to pull up every alternate one. The openings left are beneficial to the remaining plants; and some, especially of the August-raised plants, may be left, if required for cabbaging.

The cabbage is liable to the MILDEW and AMBURY, which see, and to many insects, as the *Aphis*, *Mamestra*, and those next enumerated.

CABBAGE BUTTERFLY. See PIERIS.

CABBAGE FLY. See ANTHOMYIA.

CABBAGE - GARDEN PEBBLE - MOTH. *Pyralis*.

CABBAGE MOTH. *Mamestra*.

CABO'MBA. (Derivation not explained. Nat. ord., *Watershields* [Cabombacæ]. Linn., 6-*Hexandria* 2-*Digynia*.)

A small water-plant, with floating shield-like leaves, and small yellow flowers, which look, at a distance, like so many Crowfoot-flowers. An interesting species, propagated by root division, requiring only greenhouse culture in summer, and to rest in a cool part of the stove in winter. A shallow pan of water, with three inches deep of rich loam in the bottom, will suit it well.

C. aquatica (aquatic). Yellow. May. Carolina. 1823.

CACA'LIA (From *kakos*, pernicious, and *lian*, exceedingly; supposed to be hurtful to the soil. Nat. ord., *Compositæ* [Asteracæ]. Linn., 19-*Syngenesia* 1-*Æqualis*. Allied to *Senecio*.)

Hardy species are propagated by dividing the plant, and dividing the root when tuberous. *C. coccinea* may be sown in the borders, in April; other annuals require a hotbed; Cape and East Indian species require the greenhouse and stove respectively. Cuttings should have their juicy ends dried before inserting them in sandy soil; sandy loam, fibry peat, equal parts; lime-rubbish and very rotten cow-dung, half a part of each.

HARDY HERBACEOUS.

C. alpina (alpine). 2. Purple. July. Austria. 1739.

— *coccinea* (scarlet-flowered). 1½. Orange. June. 1799. Annual.

— *cordifolia* (heart-leaved). 1. White. August. Mexico. 1823. Tuberous-rooted.

C. hastata (halbert-leaved). 1. White. September. Siberia. 1780.
— *reniformis* (kidney-formed). 1½. White. July. N. Amer. 1801.
— *suaveolens* (sweet-scented). 6. White. August. N. Amer. 1752.
— *tuberosa* (tuberous). 1. August. N. Amer. 1812. Tuberous-rooted.

GREENHOUSE EVERGREENS.

C. articulata (jointed). 1½. Yellow. September. Cape of Good Hope. 1775.
— *carnea* (fleshy-leaved). 1½. Yellow. June. Cape of Good Hope. 1757.
— *cylindrica* (cylindrical). 1. Yellow. June. Cape of Good Hope. 1818.
— *Haworthia* (Haworth's). 2. Yellow. Cape of Good Hope. 1795.
— *Kleinia* (Klein's). 3. Yellow. September. Canaries. 1732.
— *longifolia* (long-leaved). 1. Yellow. 1820.
— *papillaris* (pimpled-stalked). 2. Yellow. Cape of Good Hope. 1727.
— *radicans* (rooting). ½. Yellow. July. Cape of Good Hope. 1823. Creeper.
— *reticulata* (netted). 2. Yellow. Bourbon. 1823.
— *scaandens* (climbing). 6. Orange, purple. April. Cape of Good Hope. 1814. Twiner.

STOVE.

C. bicolor (two-coloured). 2. Purple. July. E. Ind. 1804. Deciduous.
— *ovatis* (oval-leaved). 3. Yellow. July. E. Ind. 1734. Evergreen.

CACO'UCIA. (The Indian name. Nat. ord., *Myrobolans* [Combretacæ]. Linn., 11-*Dodecandria* 1-*Monogynia*. Allied to *Combretum*.)

A fine stove climber, requiring the same treatment as *Combretum purpureum*. Cuttings of stiff side-shoots in sand, under a bell-glass, in bottom-heat. Peat and loam, both sandy and fibry. Summer temp., 60° to 85°; winter, 50° to 60°.

C. coccinea (scarlet). Scarlet. May. Guiana.

CA'CTUS. Melon Thistle. (A name applied by Theophrastus to some spiny plant. Nat. ord., *Indian Figs* [Cactacæ]. Linn., 12-*Icosandria* 1-*Monogynia*.)

This extensive genus of Indian Fig, Melon-cactus, &c., has been very properly divided into several and well-marked sub-genera: here we gather them under one general title.

C. corrugatus (shrivelled). Chili. 1824.
— *foliosus* (leafy). Chili. 1824.
— *redactus* (restored). 2. Mexico. 1796.
— *senilis* (old). 20 feet at least. Mexico. 1823.
— *speciosissimus* (most showy). Crimson. July. S. Amer. 1836.

Echinocactus. (Hedgehog Thistle.)

C. abnormis (mis-shapen). White. July. S. Amer. 1818.
— *acutus* (sharp-ribbed). April. Monte Video. 1828.
— *acutangularis* (sharp-angled). Yellow. September. Mexico. 1835.
— *agglomeratus* (heaped). June. Mexico. 1836.
— *Anconianus* (Anconian). April. Ancona. 1834.
— *arcuatus* (arch-ribbed). Yellow. September. Monte Video. 1836.

- C. centete'rius* (many-spined). Yellow. July. Mexico. 1840.
 — *chlorophthal'mus* (green-eyed). Purple. June. Rio del Monte.
 — *cocci'neus* (scarlet-flowered). Scarlet. September. 1835.
 — *conco'nus* (neat). Yellow. March. Monte Video. 1828.
 — *corni'gerus* (horn-bearing). White. July. Mexico. 1830.
 — *corynoi'des* (club-shaped). Yellow. October. S. Amer. 1837.
 — *crispa'tus* (curled). Purple. Mexico. 1825.
 — *cylindricus* (cylindrical). Mexico. 1836.
 — *densus* (dense). Mexico. 1829.
 — *Deppei* (Deppe's). Mexico. 1829.
 — *depressus* (depressed). S. Amer. 1798.
 — *echina'tus* (hedgehog-like). April. Mexico. 1830.
 — *edulis* (eatable). Yellow. Mexico.
 — *erina'ceus* (rough). July. 1818.
 — *Eyre'sii* (Eyre's). White, yellow. September. Mexico. 1829.
 — *glau'cus* (milky-green). White, green. July.
 — *gibbo'sus* (swollen). White. July. Jamaica. 1808.
 — *Gillie'sii* (Gillie's). September. Mexico. 1830.
 — *gladia'tus* (sword-spined). July. Mexico. 1826.
 — *hexadro'phorus* (six-sided). White. June. Tampico.
 — *infla'tus* (inflated). Chili. 1823.
 — *ingens* (huge). Mexico. 1838.
 — *into'rtus* (twisted-spined). Purple. June. Antigua. 1768.
 — *intrica'tus* (intricate). April. Monte Video. 1828.
 — *Le'echii* (Lecche's). Yellow. July. S. Amer. 1833.
 — *Leea'nus* (Lee's). Pale sulphur. May. Buenos Ayres. 1840.
 — *Li'nkii* (Link's). Yellow. July. Mexico. 1828.
 — *longithama'tus* (long-hooked). $\frac{3}{4}$. Yellow. July. Mexico. 1851.
 — *Mackiea'nus* (Mackie's). Yellow. Chili. 1836.
 — *mammillaro'i'des* (mammillaria-like). Yellow. Chili. 1836.
 — *Montevide'nsis* (Monte Video). Yellow. Monte Video. 1835.
 — *multiflo'rus* (many-flowered). White. June.
 — *myrtosti'gma* (many-spotted). Pale-striped. July. Mexico. 1843.
 — *no'bilis* (noble). White. June. Mexico. 1796.
 — *ovalla'tus* (fenced-round). Purple. Mexico.
 — *octogo'nus* (eight-sided). Red, white. June. S. Amer. 1830.
 — *oxygo'nus* (sharp-angled). Pale rose. May. Brazil. 1831.
 — *pectini'ferus* (comb-like). Pale green, rose. April. Mexico. 1844.
 — *Pentla'ndi* (Pentland's). Rose. July.
 — *pulche'lla* (neat). White. August. Mexico. 1831.
 — *rhodophtha'l'mus* (red-eyed). $\frac{1}{2}$. Crimson. August. Potosi. 1850.
 — *sco'pa* (broom). Yellow. April. Brazil. 1839.
 — *spi'nis-a'l'bis* (white-spined). Yellow. June. Brazil. 1836.
 — *Staine'sii* (Staines's). Pink. May. Mexico. 1844.
 — *streptocau'ton* (spiral-stemmed). $1\frac{1}{4}$. Yellow. August. Bolivia. 1845.
 — *subgibbo'sus* (slightly-swollen). White. July. Chili. 1830.
 — *tubiflo'rus* (tube-flowered). White. Mexico. 1836.

- C. vi'snaga* (tooth-pick-spined). Yellow, pink. Mexico. 1844.
 — *Willia'msii* (William's). White. June. Mexico. 1845.

Epiphy'llum. (Leaf-flowering.)

- C. Ackermanni* (Ackermann's). Scarlet. June. Mexico. 1829.
 — *major* (larger-flowered). Scarlet. June.
 — *ala'tum* (winged). White. June. N. Amer. 1810.
 — *cocci'neum* (scarlet). Scarlet. June. Brazil. 1828.
 — *crena'tum* (scolloped). Pale cream. May. Honduras. 1839.
 — *Hookeri* (Sir Wm. Hooker's). White. June. S. Amer.
 — *longifol'ium* (long-leaved). June. Mexico. 1838.
 — *la'tifrons* (broad-stemmed). White. August. S. Amer. 1820.
 — *phylla'nthus* (many-flowering). White. June. S. Amer. 1810.
 — *rho'mbeum* (diamond-leaved). Pale yellow. June. Brazil. 1835.
 — *specio'sum* (showy). Red. June. Brazil. 1810.
 — *trunca'tum* (abrupt-ended). Pink. June. Brazil. 1818.
 — *cocci'neum* (scarlet). Scarlet. June. 1818.
 — *Russellia'nium* (Duke of Bedford's). Pink. May. Brazil. 1839.
 — *violaceum* (violet-colour-flowered). Violet. May.

Mammilla'ria. (Nipple-bearers.)

- C. chrysa'antha* (golden-spined). Yellow. S. Amer. 1827.
 — *chrysa'antha* (yellow-flowered). Yellow. S. Amer. 1827.
 — *cocci'nea* (scarlet-flowered). Scarlet. June. Chili. 1827.
 — *columna'ris* (column-like). Mexico. 1838.
 — *co'nica* (cone-headed). July. 1808.
 — *corona'ria* (garland). Scarlet. July. S. Amer. 1817.
 — *densa* (dense). June. Mexico. 1830.
 — *depre'ssa* (depressed). Red, green. July. S. Amer. 1800.
 — *discolor* (two-coloured). Red. July. S. Amer. 1800.
 — *echina'ria* (hedgehog). Pale pink. Mexico. 1830.
 — *flavescens* (yellow-spined). Yellow. 1811.
 — *floribu'nda* (many-flowered). Pink. Chili.
 — *fulvispi'na* (brown-spined). Red. Brazil. 1829.
 — *geminispi'na* (twin-spined). Red. Mexico. 1823.
 — *glomera'ta* (tufted). Red. St. Domingo. 1825.
 — *hel'teris* (twisted). Rose. June. Mexico. 1827.
 — *lani'fera* (wool-bearing). Red. Mexico. 1823.
 — *Lehma'nii* (Lehmann's). Yellow. Mexico. 1836.
 — *Missouri'ensis* (Missouri). White. July. Missouri. 1818.
 — *proli'fera* (white-spined-proliferous). Whitish. July. S. Amer. 1800.
 — *pulchra* (pretty). Yellow. June. Mexico. 1826.
 — *pusi'lla* (small). Pale red. S. Amer. 1820.
 — *pyramida'lis* (pyramidal). Mexico. 1835.
 — *quadra'ta* (four-sided). Chili. 1827.
 — *quadrispi'na* (four-spined). Mexico. 1838.
 — *specio'sa* (showy). Red. Chili. 1827.
 — *stella'ta* (starry). Pink. May. S. Amer. 1815.
 — *strami'nea* (straw-coloured). Red. June. S. Amer. 1811.

C. te'nuis (slender). Pale yellow. May. Mexico.

1830.

— *tetraca'ntha* (four-spined). Rose. July. Mexico.

— *turbina'ta* (top-shaped). Striped. July. Mexico.

1838.

— *ve'tula* (oldish). Light scarlet. 1835.

— *viv'ipara* (viviparous). Red. Louisiana. 1811.

Melo-ca'tetus (Turk's-Cap-Cactus).

C. amœ'nus (lovely). Light scarlet. 1835.

— *commu'nis* (common). Red. July. W. Ind. 1788.

— *vi'ridis* (green). 1836.

— *depre'ssus* (depressed). Scarlet. Pernambuco.

— *macra'ntha* (large-spined). White, red. S. Amer. 1820.

— *meonaca'nthus* (oblong-spined). Jamaica. 1835.

— *placentifo'rmi*s (placenta-shaped). Red. Brazil.

— *polyaca'ntha* (many-spined). Brazil.

— *pyramida'tis* (pyramidal). Red. Curacoa. 1824.

— *spi'nis-ru'bris* (red-spined).

There are many more species in all the above subdivisions of *Cactus* mentioned in botanical works; but so little is known about them that is certain that we have omitted them. We think, also, that when this very numerous genus is better known, many now considered as species will be found to be a single species at different periods of its growth.

Culture.—It is possible that under the different names of *Epiphy'llum*, *Mamil-la'ria*, and *Meloca'tus* we may see occasion to detail a few extra points of culture; but we may observe here, that there are features of cultivation common to them all, namely, a high temperature and a somewhat moist atmosphere when growing in summer; a dry atmosphere when ripening their growth; and a dry atmosphere—dryness comparatively at the roots—and a low temperature when in a state of rest. Though a temperature of from 80° to 95° will not be too high in the one case, one not below 40° will suffice in the other.

Echinocactus culture.—This group is propagated, at times, by seed, which should be sown as soon as ripe in shallow pans, and plunged in a hotbed; by offsets, which should be well-dried at the base before planting, and then plunged into bottom-heat. This method of propagating should only be resorted to in spring or summer; all changing of the soil, or re-potting, should also be done at that time, as, if done in winter, stagnation and decay are apt to ensue. Good drainage constitutes an essential feature. Soil, equal portions of sandy loam and peat, and half parts of clear river or silver-sand, leaf-mould, or dried, old cow-dung, and brick-rubbish, consisting, however, more of the brick broken than the linc. In addition to this compost, when potting offsets without roots, a little silver-sand may be advantageously placed

round them, and firmness be secured by placing some slight pins of wood round their base. In re-potting, it is well to use a thick, soft glove, to save alike hands and spines; and then it is advisable to remove most of the soil, as well as drainage, and any faulty roots, holding the plant well up, and shaking the compost with the other hand carefully among the roots. Water at all times must be given with care; but, when growing in fine weather in summer, they will require a considerable supply both at the roots and as vapour in the atmosphere, with a high temperature. As soon as the spines change colour, moisture must be gradually withheld, the temperature lowered, and more air given. Summer temp., 60° to 90°; winter, 40° to 50°.

Insects.—The Red Spider seizes them at times; and he must be started immediately, either by covering the surface of the pot, and then placing your hand over it, turning it topsy-turvy, and drawing the plant rapidly several times through water at 120°; or by dusting the plants with flowers of sulphur; or, as alike prevention and cure, fuming the house by placing sulphur on the hot-water pipes, or on a hot-water plate kept on purpose. The most remarkable are the *E. Stanesii* and *Viznaga*, the monsters for size lately introduced to Kew Gardens.

CÆLEST'NA. (From *caelestis*, celestial; in reference to its sky-blue colour. Nat. ord., *Compositæ* [Asteraceæ]. Linn., 19-Syngenesia 1-Æqualis. Allied to *Ageratum*.)

Seed and cuttings take freely. Greenhouse and cold pit in winter, and the flower-border in summer. They grow most compactly in loamy soil.

C. ageratoïdes (ageratum-like). 1. Blue. August. New Spain.

— *carulea* (sky-blue). 1. Blue. July. N. Amer. 1732.

— *micra'ntha* (small-flowered). 1½. Blue. July. S. Amer. 1800.

CENO'PTERIS. (From *kainos*, new, and *ptēris*, a fern. Nat. ord., *Ferns* [Polypodiaceæ]. Linn., 24-Cryptogamia 1-Filices.)

Divisions, like most Ferns; peat and loam. Summer temp., 60° to 70°; winter, 35° to 50°.

GREENHOUSE EVERGREENS.

C. appendicu'la (appendaged). 3. Brown. July. N. Holland. 1822.

— *odonti'tes* (odontites). 3. Brown. July. N. Holland. 1822.

STOVE HERBACEOUS.

C. myriophy'lla (myriad-leaved). 1. Brown. December. W. Ind.

- C. rhizophylla* (rooting-leaved). 1. Brown. June. W. Ind. 1827.
— *thalictroides* (thalictum-like). 1. Brown. September. Jamaica.

CÆSALPY'NIA. Brasiletto. (Named after *Cæsalpinus*, physician to Pope Clement VIII. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 10-*Decandria* 1-*Monogynia*. In alliance with *Poinciana*.)

"As hard as Brazils" refers to the Brazil-wood—that of *Cæsalpinia Brasiliensis*. Stove evergreens, except where otherwise mentioned. Seeds and cuttings in sand, and in bottom-heat. Peat and loam. Summer temp., 60° to 75°; winter, 50° to 55°.

- C. Bahamensis* (Bahama). 15. White. Bahama. 1820.
— *Brasiliensis* (Brazilian). 20. Orange. Jamaica. 1799.
— *cassiodores* (cassia-like). 6. Yellow. S. Amer. 1821.
— *Chinensis* (China). 10. Yellow. E. Ind. 1820.
— *Gilliesii* (Gillies's). Mendoza. 1829. Deciduous.
— *oleosperma* (oil-seeded). 15. Yellow. E. Ind. 1820.
— *paniculata* (panicked). 6. Yellow. Malabar. 1817.
— *procera* (tall). 30. Yellow. Cuba. 1824.
— *punctata* (dotted). 6. Yellow. Brazil. 1820.
— *Sappan* (Sappan). 20. Yellow. E. Ind. 1773.
— *scandens* (climbing). 20. Yellow. E. Ind. 1800. Climber.
— *vesicaria* (bladdered). 12. Yellow. E. Ind. 1820.

CÆ'SIA. (Named after *F. Cæsia*. Nat. ord., *Lilyworts* [Liliaceæ]. Linn., 6-*Hexandria* 1-*Monogynia*. Allied to *Anthericum*.)

Greenhouse tuberous-rooted perennial. Seeds in March, in heat; division of the roots; loam and peat. Summer temp., 60° to 70°; winter, 40° to 45°.

- C. vittata* (riband). 1. Pale blue. July. N. S. Wales. 1816.

CAJA'NUS. Pigeon Pea. (From its Malabar name, *Catjang*. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 17-*Diadelphia* 1-*Pentandria*. Allied to *Phaseolus*.)

Stove evergreen shrubs. Seeds in spring; sandy loam and peat. Summer temp., 60° to 75°; winter, 50° to 55°.

- C. bicolor* (two-coloured). 4. Yellow. July. E. Ind. 1800.
— *flavus* (yellow). 4. Yellow. July. E. Ind. 1867.

CAJEPUT-TREE. *Melaleuca leucadendron*.

CAJOPHO'RA. (From *kaio*, to sting; referring to the stinging property in the hairs on the leaves and stems. Nat. ord., *Loasads* [Loasaceæ]. Linn., 13-*Polyandria* 1-*Monogynia*. Allied to *Blumenbachia*.)

Hardy annuals. Seeds in open border, in the

end of April, or in a slight hotbed, in March, and afterwards transplanted as a half-hardy annual.

- C. lateritia* (brick-coloured). Red, orange. May. Tucumania. 1836. Climber.
— *Pentlandica* (Pentland). Orange. May. Peru. 1841.

CALABA-TREE. *Calophyllum calaba*.

CALABASH. *Orescæntia*.

CALADE'NIA. (From *kalos*, beautiful, and *aden*, a gland. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-*Gynandria* 1-*Monogynia*. Allied to *Limodorum*.)

New Holland, half-hardy, terrestrial orchids. Division of the roots; loam, peat, sand, and broken pots in equal portions. A cool greenhouse in winter.

- C. alata* (winged). June. N. Holland. 1823.
— *alba* (white). White. July. N. Holland. 1810.
— *cærulea* (sky-blue). Blue. N. Holland. 1804.
— *carnea* (flesh-coloured). Flesh. July. N. Holland. 1826.
— *clavigera* (club-tipped). June. N. S. Wales.
— *denticulata* (toothed). Yellow. Swan River.
— *dilatata* (broad-tipped). N. S. Wales.
— *elongata* (elongated). Yellow. May. Swan River.
— *geminata* (budded). Purple. May. Swan River.
— *gracilis* (slender). Australia. 1826.
— *hirta* (hairy). Yellow. May. Swan River.
— *ixioides* (ixia-like). Yellow. May. Swan River.
— *longicauda* (long-spurred). Yellow. June. Swan River.
— *marginata* (bordered). Purple. May. Swan River.
— *molles* (soft). Yellow. Swan River.
— *Patersonii* (Paterson's). N. S. Wales.
— *pilifera* (hairy). Purple. September. Swan River.
— *repens* (creeping). Purple. August. Swan River.
— *testacea* (light-brown). July. N. Holland. 1824.
— *unguiculata* (clawed). Yellow. August. Swan River.

CALA'DIUM. (A word of uncertain derivation, perhaps from *kaladion*, a cup. Nat. ord., *Arads* [Araceæ]. Linn., 21-*Monæcia* 9-*Polyandria*. Allied to *Colocasia*.)

The ginger-like roots of *C. bicolor*, &c., are used as common food in tropical countries, under the name cocoa-roots; but the roots of others are very acrid. Stove plants, with the exception of *C. Virginicum*. Interesting chiefly on account of their stems and leaves. Herbaceous kinds by division of the plants, and suckers; sub-shrubs, cuttings, and dividing the roots; rich, lumpy soil, and abundance of water. Summer temp., 60° to 85°; winter, 50° to 55°.

STOVE EVERGREENS.

- C. aculeatum* (prickled). White. Surinam. 1822.
— *arborescens* (tree-like). 8. White. June. W. Ind. 1759.
— *arboresum* (tree). 9. White. Cumana. 1820.
— *auritum* (ear-leaved). 3. White. America. 1739.
— *cucullatum* (hood-leaved). Green. March. China. 1826.

- C. fragrantissimum* (most fragrant). 4. Red Demerara. 1832. A parasite.
 — *helleborifolium* (hellebore-leaved). 2. White. June. Caraccas. 1796.
 — *laetum* (torn). 4. White. Caraccas. 1822.
 — *maculatum* (spotted). 6. Green. August. S. Amer. 1820.
 — *Seguinum* (Seguin Dumb-cane). 6. White. March. Amer. 1759.
 — *tripartitum* (three-parted-leaved). 3. White. Caraccas. 1816.
 — *xanthorhizum* (yellow-rooted). White. 1822.

STOVE HERBACEOUS.

- C. bicolor* (two-coloured). 1. White. June. Madeira. 1773.
 — *edule* (eatable). 4. White. Guiana. 1800.
 — *esculentum* (esculent). 2. White. America. 1789.
 — *lividum* (livid). 1. Dingy. September. W. Ind. 1828.
 — *nymphæifolium* (water-lily-leaved). 4. White. E. Ind. 1800.
 — *odoratum* (fragrant). 2. White. Pegu. 1818.
 — *ovatum* (egg-shaped). 4. White. E. Ind. 1818.
 — *pedatum* (doubly-cut-leaved). 2. White. Brazil. 1824.
 — *petiolatum* (long-leaf-stalked). 1. Purple. June. Fernando Po. 1832. Tuberous-rooted.
 — *pinnatifidum* (deeply-lobed-leaved). 2. White. Caraccas. 1817.
 — *pumilum* (dwarf). 1. White. Nepaul. 1820.
 — *sagittatifolium* (arrow-leaved). 2. White. W. Ind. 1710.
 — *scandens* (climbing). 2. White. Guinea. 1822.
 — *Virginicum* (Virginian). 1. June. Virginia. 1759. Hardy.
 — *viviparum* (viviparous). 2. Green. May. E. Ind. 1817.
 — *zamiaefolium* (zamia-leaved). Yellow. Brazil.

CALA'IS. (Named after a fabled individual covered with scales; referring to the scaly involucre, or the parts which surround the outside of composite flowers. Nat. ord., *Compositæ* [Asteracæ]. Linn., 19-Syngenesia 1-Æqualis. Allied to Succory.)

A hardy annual. Seeds in common soil, in March or April.

- C. Lindleyi* (Dr. Lindley's). Yellow. May. N. Amer. 1833.

CALAM'INTHA. Calamint. (From *kalos*, beautiful, and *mintha*, mint. Nat. ord., *Labiates* [Lamiacæ]. Linn., 14-Didynamia 1-Angiospermia. Allied to Melissa.)

Hardy herbaceous perennials, except where otherwise mentioned. Suckers and divisions; common soil.

- C. alba* (white). 3. White. July. Hungary. 1813.
 — *Caroliniana* (Carolina). 1. Flame. June. Carolina. 1804.
 — *Cretica* (Cretan). 3. Purple. June. South Europe. 1596. Half-hardy evergreen.
 — *fruticosa* (shrubby). 3. Purple. August. Spain. 1752. Half-hardy evergreen.
 — *grandiflora* (large-flowered). 1. Red. July. Italy. 1596.

- C. grandiflora variegata* (variegated-leaved). 1. Red. July. Gardens.
 — *marifolium* (marum-leaved). 1½. Purple. June. Spain. 1783.

CAL'AMUS. (From *kalos*, the Arabic word for a reed. Nat. ord., a section of *Palms* [Palmacæ]. Linn., 6-Hexandria 1-Monogynia.)

The dark-coloured resin called Dragon's-blood is the natural secretion of the fruit of *C. draco*. Stove palms. Seed; sandy loam. Summer temp., 60° to 80°; winter, 50° to 55°.

- C. albus* (white). 50. E. Ind. 1812.
 — *draco* (dragon). 50. E. Ind. 1819.
 — *niger* (black). 20. Green. E. Ind. 1824.
 — *rudetum* (cable). 200. Green. E. Ind. 1812.
 — *verus* (true). 20. Green. Cochín China. 1812.
 — *Zalacca* (Zalacca). 20. Green. E. Ind. 1812.

CALANDRI'NIA. (Named after *Calandrina*, a German botanist. Nat. ord., *Purslanes* [Portulacæ]. Linn., 11-Decandria 1-Monogynia.)

When grown from seeds, the hardy, as well as the greenhouse and stove kinds, like a little protection, such as may be given by a slight hotbed, in April, and a hand-light over it. Cuttings, also, strike freely; light, sandy soil, well drained, suits them well.

HARDY.

- C. arenaria* (sand-inhabiting). ½. Orange, red. July. Valparaiso. 1831. Herbaceous perennial.
 — *caulescens* (stemmed). Rose. August. Mexico. 1827. Annual.
 — *compressa* (flattened). ½. Rose. August. Chili. 1826. Annual.
 — *monandra* (one-stamened). 3. Red. August. Chili. 1837. Annual.
 — *procumbens* (lying-down). ½. Rose. August. Peru. 1827. Annual.
 — *speciosa* (showy). ½. Purple. June. California. 1831. Herbaceous perennial.
 — *umbellata* (umbel-flowered). ½. Rose. July. Peru. 1826. Annual.

GREENHOUSE.

- C. Andrewsii* (Andrews'). Rose. August. W. Ind. 1812. Deciduous shrub.
 — *bicolor* (two-coloured-leaved). 1½. Rose. July. Chili. 1834. Herbaceous perennial.
 — *glauca* (milky-green). Rose. August. Chili. 1827. Annual.
 — *Lockhartii* (Lockhart's). Rose. June. Trinidad. 1825. Deciduous shrub.
 — *nitida* (shining). ½. Red. August. Chili. 1837. Annual.
 — *phacoserma* (lentil-seeded). Red. August. Chili. 1837. Biennial.

STOVE.

- C. ascendens* (ascending). ½. Purple. Brazil. Herbaceous perennial.
 — *ciliata* (hair-fringed). ½. Purple. August. Chili. 1823. Annual.
 — *grandiflora* (large-flowered). 1. Purple. July. Chili. 1826. Herbaceous perennial.
 — *Llavea* (La Llave's). April. Mexico. Herbaceous perennial.
 — *paniculata* (panicked). 1½. Purple. July. S. Amer. 1816. Herbaceous perennial.

CALANTHE. (From *kalos*, beautiful, and *anthos*, a flower. Nat. ord., a section of

Orchids [Orchidaceæ]. Linn., 20-*Gynandria* 1-*Monogynia*.)

Terrestrial orchids, all evergreens except *C. vestita*. Divisions and suckers; loam and peat, lightened with sand and charcoal, and enriched by top-dressings of old cow-dung; extra well-drained, constantly moist, and the plants well exposed to light. Summer temp., 60° to 80°; winter, 50° to 55°.

GREENHOUSE.

C. bicolor (two-coloured). Yellow. Japan. 1837.
— *discolor* (discoloured). White. Japan. 1837.
— *furcata* (forked). White. Luzon Isles. 1836.

STOVE.

C. australis (southern). N. S. Wales. 1823.
— *brevecornu* (short-horned). Rose. White. August. Nepaul. 1838.
— *curculigoides* (curculigo-like). 2. Orange. October. Malacca. 1844.
— *densiflora* (thickly-flowered). 3. Yellowish. September. E. Ind. 1837.
— *flavicans* (yellowish-flowered). White, blue. April. E. Ind. 1838.
— *gracilis* (slender). Greenish-yellow. September. Khasya. 1851.
— *Masuca* (Masuca). 2. Violet, purple. June. E. Ind. 1838.
— *ochracea* (ochre-coloured). Pale yellow. April. Japan. 1836.
— *plantaginea* (plantain-leaved). Lilac. February. Nepaul. 1839.
— *Sieboldii* (Siebold's). E. Ind. 1837.
— *sylvaticus* (wood). White, changing to yellow. Madagascar. 1823.
— *veratrifolia* (veratrum-leaved). 2. White. April. Java. 1819.
— *versicolor* (various-coloured-flowered). Whitish-blue. August. Mauritius. 1836.
— *vestita* (clothed). 2½. White and pink. November. This has pseudo-bulbs. No water given between December and March, its time of rest.—See *The Cottage Gardener*, v. 166.
— *viridis fusca* (greenish-brown). Greenish-brown. April. Assam.

CALATHEA. (From *kalathos*, a basket; in reference to the leaves being worked into baskets in South America. Nat. ord., *Maranth*s [Marantaceæ]. Linn., 1-*Monandria* 1-*Monogynia*.)

Stove herbaceous perennials. Divisions; sandy peat and fibry loam. Summer temp., 60° to 75°; winter, 55° to 60°.

C. flavesceus (pale yellow). 1½. Yellow. August. Brazil. 1822.
— *grandifolia* (large-leaved). 2. Yellow. July. Rio Janeiro. 1826.
— *longibracteata* (long-bracted). 1. Purple. July. Brazil. 1826.
— *orbiculata* (round-leaved). 2. Yellow. August. W. Ind. 1830.
— *villosa* (shaggy). 3. April. Brazil. 1825.
— *violacea* (violet-coloured). 1½. Purple. July. Brazil. 1815.
— *zebrina* (zebra-plant). 2. Red, yellow. Brazil. 1815.

CALATHIAN VIOLET. *Gentiana pneumonanthe*.

CALCAREOUS SOIL is a soil in which chalk (carbonate of lime) predominates.

The colour approaches to white, in proportion. No soil is productive which does not contain some chalk, or in which it exceeds nineteen parts out of twenty. From one to five per cent. is the usual proportion in fertile soils. Calcareous soils are rarely productive; they are so feebly retentive of moisture, that the crops upon them are burnt up in summer; and they reflect the sun's rays so fully, that they remain unheated, and vegetation is late upon them in spring. The best addition to such soils, to improve their staple, is clay.

CALCEOLARIA. Slipperwort. (From *calceolus*, a slipper; in reference to the shape of the flower. Nat. ord., *Figwort*s [Scrophulariaceæ]. Linn., 2-*Diandria* 1-*Monogynia*.)

Herbaceous kinds, to bloom early, sow seeds in August and September, and cuttings at the same time. Shrubby kinds, for flower-garden decoration, by cuttings of firm young shoots, under glass, in September; and again, in heat, in March. Soil for pots, light and rich compost, well drained; for beds, a good loam should preponderate. Summer temp., 50° to 60°; winter, 35° to 45°.

HERBACEOUS PERENNIALS.

C. amplexicaulis (stem-clasping). 1½. Yellow. June. Peru. 1845.
— *arachnoides* (cobweb-like). 1. Purple. June. Chili. 1827.
— *alba* (white-flowered). 1. White. June.
— *connata* (base-joined-leaved). 3. Yellow. Chili. 1824. Biennial.
— *corymbosa* (corymbose). 1. Yellow. May. Chili. 1822.
— *crenatiflora* (scolloped-tipped). 1½. Yellow-spotted. June. Chili. 1831.
— *cuneifolia* (wedge-shaped-leaved). 1½. Pale lemon. Bolivia. 1846.
— *flexuosa* (zigzag). 3. Yellow. Peru Mountains. 1847.
— *Fothergillii* (Fothergill's). ½. Orange. April. Falkland Isles. 1777.
— *Herbertiana* (Herbert's). ½. Yellow. June. Chili. 1828.
— *pinna*ta (leafleted). 2. Yellow. July. Peru. 1773. Annual.
— *plantaginea* (plantain-leaved). 1. Yellow. August. Chili. 1827.
— *polyfolia* (poly-leaved). 1. Yellow. July. Chili. 1827.
— *purpurea* (purple-flowered). 1. Purple. July. Chili. 1827.
— *elegans* (elegant). 1. Pale purple. June. Chili. 1832.
— *picta* (painted). 1. White, purple. June. Chili. 1832.

SHRUBBY EVERGREENS.

C. alba (white-flowered). 1½. White. June. Chili. 1844.
— *angustiflora* (narrow-flowered). 1½. Yellow. June. Peru. 1830.
— *ascendens* (ascending). 1. Yellow. July. Cordilleras. 1826.
— *bicolor* (two-coloured). 2. Yellow. August. Peru. 1829.

- C. Chiloe'nsis* (Chiloe). 2. Yellow. August. Chiloe. 1830.
 — *floribunda* (many-flowered). 1½. Pale yellow. September. Quito. 1843.
 — *Herbertia'na parviflora* (Herbert's small-flowered). 2. Yellow. April. Valparaiso. 1836.
 — *integrifolia* (entire-leaved). 2. Yellow. August. Chili. 1822.
 — — *angustifolia* (narrow-leaved). 2. Yellow. August. Chili. 1822.
 — — *viscosissima* (clammiest). 3. Yellow. August. Chili. 1832.
 — *pendula* (hanging). Yellow-spotted. July. Chili. 1831.
 — *rugosa* (wrinkled). 2. Yellow. August. Chili. 1822.
 — *scabiosifolia* (scabious-leaved). 2. Yellow. May. Chili. 1822. Trailer.
 — *se'silis* (stalkless-leaved). 1½. Yellow. September. Valparaiso. 1832.
 — *thyrsiflora* (thyrses-flowered). 1½. Yellow. June. Chili. 1827.

CALCEOLARIA AS A FLORIST'S FLOWER.—

Propagation by Cuttings.—In August, immediately after flowering, and in March. In August, from a spent hotbed, remove the soil, and place six inches of dry coal-ashes or sawdust. In spring, prepare a hotbed of leaves, or stable litter, a month before it is wanted, to allow the strong heat to subside; then cover it with the same depth of coal-ashes or sawdust. Fill a sufficient number of pots, within an inch of the top, with light, sandy loam; fill up to the rim with silver-sand, and water gently, to settle the sand firmly. Take off the cuttings (the young tops are the best); cut off the bottom leaves, leaving two or three at the top; put them in the sand by the aid of a small, sharp-pointed stick, pressing the sand about them firmly. The herbaceous varieties should be placed rather thinly round the edge of the pot; the half-shrubby ones may be put in all over the pot, neatly, in rows; then give a gentle watering. Allow the water to dry off, and then plunge them into the hotbed, in the ashes or sawdust, up to the rims of the pots, taking care that the heat is moderate. Shade for a week all the day; afterwards, only when the sun shines. If the sand becomes dry, water in the morning of a fine day; but very little water will be necessary. Remove all decaying leaves, or dead cuttings, as they occur. As soon as the cuttings are rooted, pot them off in the same kind of soil, and in 2½-inch pots, and set them on the surface of the same bed till they make fresh roots; then remove them into a shady part of the greenhouse for a week previously to re-potting.

By Seed.—Sow twice, as soon as the seed is ripe, and in early spring. Sow in wide, shallow seed-pans, rather thinly, and very slightly covered. A similar situation as for cuttings will answer; but, as soon as the seedlings are up, place them on a shelf, near the glass, in an airy greenhouse. When they are large enough, pot them into 2½-inch pots, singly, and keep re-potting, as they require it, till they are in 6-inch pots; then allow them to flower; and such as are of a good form, bright, distinct colours, and a fair size, re-pot again, and keep them to propagate by cuttings; but all others either throw away or plant them out to ornament the flower-borders till the frost kills them.

To save Seed.—Impregnation is necessary in order to produce good seed and to produce variety. Choose the pollen from a bright-coloured, clear-spotted variety, and apply it to the best-formed ones destined to bear the seed—the male parent for colour, and the female for shape.

Soil.—Light, sandy, yellow loam, two bushels; leaf-mould, half a bushel, much-decayed cow-dung, one peck; mix thoroughly, and use in a moderately dry state. If the loam is not sandy naturally, add as much sifted river-sand as will make it so.

Summer Culture.—Commence potting as early in spring as possible; autumn-struck cuttings early in March; and the spring-struck as soon as they are fit. Old stools never make such fine specimens as cuttings: they had better be thrown away as soon as they have yielded a crop of cuttings. Drain plentifully with broken potsherds, using a greater quantity every time. Re-pot about three times, and leave the plants, at last, in 11-inch pots to bloom. No flower-stems should be allowed to remain until the plants have attained their full growth. Keep them as near the glass as possible, in a light, airy greenhouse. After the last potting, the plants should present a healthy appearance, with large, broad leaves, of a dark-green colour. The flower-stems may now be allowed to grow: each should be tied to a neat, small, green stick. Place the sticks so as to slope outwards, to allow room for the heads to bloom. Plenty of air should be given, to cause a stout growth. They should be in perfection early in July. Each plant will be

then two feet high, and as much in diameter. They will be fine objects either for the greenhouse, when few other things are in bloom, or for exhibition purposes.

Winter Culture.—As soon as the flowers are all dead (if no seed is required), the stems ought to be cut down, and the plants either removed out of doors, or, still better, into a cold pit. Plenty of air should be given on all favourable occasions; and, as soon as the frost of winter begins to appear, remove them into the greenhouse, place them as near the glass as possible, and keep them there till the time of propagation arrives. Take off the cuttings then, and throw the old stools away.

Forcing.—On account of their impatience of heat, Calceolarias, excepting a few shrubby ones, do not force well. These may be re-potted in January, and put into a heat of 55° to 60°. Give water moderately, and allow the flower-stems to grow from the first. They will then flower in April and May.

Diseases.—The herbaceous varieties are subject to a disease very like that which has attacked the potato of late years. They appear quite healthy, until dark-brown spots appear on the leaves and stems; and in a week's time the disease spreads, and the plants are dead. No cure is known. As soon as it appears on any plant, remove it at once, and throw it away, because the disease is contagious, and soon spreads to the healthy plants. Too much wet at the root, or damp in the house, will accelerate the disease.

Insects.—The most destructive is the green fly (*Aphis*). Whenever it appears, fill the house with tobacco-smoke. Red spider (*Acarus*) will sometimes appear, if the house be kept hot and dry. Dust the leaves with sulphur where it is observed.

Calceolarias for bedding-out should be propagated in the autumn, and kept in the cutting-pots through the winter. Pot them singly in the spring, place them in a cold frame, and gradually harden them off by May. Then plant them out in a rich, light soil, where they are to flower.

CALDA'SIA. (Named after *G. Caldas*, a naturalist at Bogota. Nat. ord., *Phlox-worts* [*Polemoniaceæ*].)

Stove annual; seeds in hotbed, in spring; sandy peat. Temp., 50° to 60°.

C. heterophylla (variable-leaved). 2. Blue. July. New Spain. 1813.

CALCULU'VIA. (Named after *A. Caldeu*, *F.R.S.*, who collected botanical specimens in Chili. Nat. ord., *Cunoniads* [*Cunoniaceæ*]. Linn., 8-*Octandria* 2-*Digynia*. Allied to *Cunonia*.)

The principal character of this and other *Cunoniads* is the leaves growing opposite, with stipules between the leaf-stalks. The panicles of little white flowers have a pretty appearance. Greenhouse evergreen shrubs; cuttings of half-ripened wood in sand, under glass, and a little bottom-heat; peat and loam. Winter temp., 40° to 45°.

C. paniculata (panicked-flowered). White. June. Australia. 1831.

CA'LEA. (From *kalos*, beautiful; referring to the flowers. Nat. ord., *Composites* [*Asteraceæ*]. Linn., 19-*Syngenesia* 1-*Æqualis*. Allied to *Galinsogia*.)

Stove evergreen shrubs; seed in March; side-shoots strike freely at any time, in sand, and placed in bottom-heat, under a glass. Summer temp., 60° to 75°; winter, 55° to 60°.

C. cordifolia (heart-leaved). 2. Jamaica. 1822. — *Jamaice'nsis* (Jamaica). 3. Purple. June. W. Ind. 1739.

— *pinnatifida* (leafleted). Yellow. June. Brazil. 1816.

— *solidagin'nea* (solidago-like). 4. Caraccas. 1817.

— *urticæfolia* (nettle-leaved). 2. Yellow. July. Vera Cruz. 1740.

CALEA'CITE. See CA'LEA.

CALECTA'SIA. (From *kalos*, beautiful, and *stachys*, a spike. *Calectasias* are branched herbs, with dry, permanent, starry flowers, of a bright violet. Nat. ord., *Rushes* [*Juncaceæ*]. Linn., 6-*Hexandria* 1-*Monogynia*. Allied to *Baxteria*.)

Unless we had it on authority, we should not take this for a rush, but a lilywort. Greenhouse herbaceous perennial; divisions; peat and loam, or common soil. Winter temp., 35° to 45°.

C. cya'nea (blue-flowered). Blue. June. Australia. 1840.

CALE'NDULA. Marigold. (From *calendæ*, the first day of the month; its flowers produced almost all the year round. Nat. ord., a section of *Composites* [*Asteraceæ*]. Linn., 19-*Syngenesia* 4-*Necessaria*.)

Hardy annuals may be sown in the border, in April; tenderer ones in a slight hotbed, and transplanted in May. Greenhouse varieties by cuttings; sandy loam, and loam and peat for the greenhouse ones. See MARIGOLD.

GREENHOUSE EVERGREENS.

C. arbore'scens (tree-like). 3. Yellow. December. Cape of Good Hope. 1774.

— *chrysanthemifolia* (chrysanthemum-leaved). 2. Yellow. April. Cape of Good Hope. 1790.

— *dentata* (toothed). 1½. Yellow. May. Cape of Good Hope. 1790.

— *denticulata* (small-toothed). 1½. Yellow. December. Barbary. 1821.

- C. flaccida* (feeble). 2. Orange. May. Cape of Good Hope. 1774.
 — *fruticosa* (shrubby). 2. Yellow. June. Cape of Good Hope. 1752.
 — *muricata* (prickled). 2. Yellow. December. Cape of Good Hope.
 — *oppositifolia* (opposite-leaved). 2. Yellow. August. Cape of Good Hope. 1774.
 — *suffruticosa* (sub-shrubby). 1. Yellow. December. Cape of Good Hope. 1823.
 — *tragus* (goat-rush). 2. White, purple. May. Cape of Good Hope. 1774.
 — *viscosa* (clammy). 2. Orange. August. Cape of Good Hope. 1790.

HARDY ANNUALS.

- C. arvensis* (corn-field). 2. Yellow. June. Europe. 1597.
 — *asterias* (star). 1½. Yellow. August. Europe. 1838.
 — *gracilis* (slender). Yellow. June. Persia. 1836.
 — *graminifolia* (grass-leaved). 1. Yellow. May. Cape of Good Hope. 1531.
 — *hybrida* (hybrid-*Great-Cape*). 1. White. June. Cape of Good Hope. 1752.
 — *incana* (hoary). 1½. Yellow. July. Barbary. 1796.
 — *Mexicana* (Mexican). ½. Yellow. August. Mexico. 1829.
 — *nudicaulis* (naked-stalked). 1. White, purple. July. Cape of Good Hope. 1731.
 — *officinalis* (official. *Common marigold*). 3. Orange. June. South of Europe. 1573.
 — *stoe-re-plena* (double-flowered). 3. Orange. June.
 — *Persica* (Persian). Yellow. June. Persia. 1830.
 — *pluvialis* (rainy. *Small Cape marigold*). 1. White. June. Cape of Good Hope. 1693.
 — *sancta* (holy-pale-flowered). 2. Yellow. June. Levant. 1731.
 — *Sicula* (Sicilian). 1. Yellow. June. Sicily. 1816.
 — *stellata* (starred). 2. Yellow. July. Barbary. 1796.

CALÉ'YA. (Named after *G. Caley*, superintendent of the Botanical Garden, St. Vincent. Nat. ord., a small section of *Orchids* [Orchidaceæ]. Linn., 20-*Gynandria* 1-*Monogynia*.)

Greenhouse terrestrial orchids; division of the plants; fibry peat, lumpy loam, and a little charcoal, well-drained. Summer temp., 60° to 80°; winter, 55° to 60°.

- C. major* (greater). Green, brown. June. N. S. Wales. 1810.
 — *minor* (less). Green, brown. June. N. Holland. 1822.
 — *nigrita* (blackish-flowered). Dark. Swan River.

CALLA. (From *kalos*, beautiful. Nat. ord., *Orontiad*s [Orontiaceæ]. Linn., 7-*Heptandria* 1-*Monogynia*.)

All greenhouse plants; division of the plants and roots; rich loam and peat; the marshy one does well as an aquatic, and frequently stands out of doors; all generally need the protection of the greenhouse in winter.

- C. aromatica* (aromatic). 2. White. July. China. 1813. Herbaceous perennial.

- C. occulta* (hidden-spiked). White. May. China. 1817. Herbaceous perennial.
 — *palustris* (marsh). ½. White. July. N. Amer. 1763. Perennial aquatic.
 — *perfoliata* (perforated). 6. White. May. W. Ind. 1752. Evergreen creeper.

CALICO-BUSH. *Kalmia latifolia*.

CALLIA'NDRA. (From *kalos*, beautiful, and *aner*, a man; referring to the stamens, or male organ; literally, beautiful-stamened. The long, silky, purple or white stamens of this genus are very beautiful. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 16-*Monadelphia* 8-*Polyandria*. Allied to *Inga*.)

Stove evergreen shrubs; cuttings of rather firm young wood in sand, under a glass, in heat; peat and loam. Summer temp., 60° to 85°; winter, 50° to 55°.

- C. Harrisii* (Mr. Harris's). 20. Rose. Brazil. 1845.
 — *pulcherrima* (fairest). 20. Mexico. 1822.
 — *Tweddii* (Tweddie's). 6. Scarlet, crimson. Mexico. 1845.

CALLICA'RPA. (From *kalos*, beautiful, and *carpos*, fruit; referring to the beautiful berries. Nat. ord., *Verbenas* [Verbenaceæ]. Linn., 4-*Tetrandria* 1-*Monogynia*. Allied to *Petræa*.)

The leaves of *C. lanata* are eaten by the Cingalese as a substitute for betel-leaves. Stove evergreens, except where otherwise specified; cuttings in sandy soil, in bottom-heat; loam and peat. Summer temp., 60° to 75°; winter, 50° to 55°.

- C. Americana* (American). 6. Red. June. N. Amer. 1724. Greenhouse deciduous shrub.
 — *arboorea* (tree). 12. Purple. August. E. Ind. 1820.
 — *ca'na* (hoary). 3. Purple. E. Ind. 1799.
 — *ferruginea* (rusty). 2. Blue. June. Jamaica. 1794.
 — *incana* (very hoary). 4. Red. July. E. Ind. 1800.
 — *lanata* (woolly). 4. Purple. June. E. Ind. 1788.
 — *lanceolata* (spear-leaved). 4. Purple. July. E. Ind. 1822.
 — *longifolia* (long-leaved). 3. White. Apr. China. 1825.
 — *macrophylla* (large-leaved). 6. Pink. India. 1808.
 — *purpurea* (purple). 3. Purple. July. E. Ind. 1822.
 — *reticulata* (netted). 4. Red. July. Jamaica. 1820.
 — *rube'lla* (reddish). 2. Red. May. China. 1822.

CALY'CHROA. (From *kalos*, beautiful, and *chroa*, colour; referring to the bright-yellow colour of the flowers. Nat. ord., *Composites* [Asteraceæ]. Linn., 19-*Syngenesis* 2-*Superflua*. Allied to *Helenium*.)

Hardy annual; seed sown in March on a slight hotbed, under a hand-light, and transplanted in patches, in the open border, at the end of April, or beginning of May; or it may be sown in the

front of the border in the end of April, and it will blow later.

C. platyglossa (broad-rayed). 1. Yellow. October. California. 1835.

CALLICO'MA. (From *kalos*, beautiful, and *coma*, hair; in reference to the tufted heads of its yellow flowers. Nat. ord., *Cunoniads* [*Cunoniaceæ*]. Linn., 11-*Dodecandria* 2-*Digynia*. Allied to *Weinmannia*.)

Greenhouse evergreen shrub; cuttings of half-ripened wood, under a bell-glass, in sandy peat; sandy peat. Summer temp., 50° to 70°; winter, 40° to 45°.

C. serratifolia (saw-leaved). 4. Yellow. June. N. S. Wales. 1793.

CALLIGONUM. (From *kalos*, beautiful, and *gonum*, a joint; in reference to its leafless joints. Nat. ord., *Buckwheats* [*Polygonaceæ*]. Linn., 11-*Dodecandria* 4-*Tetragynia*. Allied to *Polygonum*.)

This is a curious leafless shrub, a native of Siberia, where the Calmucks, in times of scarcity, pound and boil the roots, from which they obtain a nutritious gum resembling tragacanth, to allay their hunger; while, by chewing the acrid branches and fruit, they quench their thirst. Hardy evergreen shrub; cuttings under a hand-glass, in spring and autumn; sandy loam.

C. Pallasia (Pallas's). 4. Green, white. August. Caspian Sea. 1780.

CALLIO'PSIS. Synonyme of **COREO'P-SIS**, which see.

CALLIPHER'RIA. (Derivation not explained. Nat. ord., *Amaryllids* [*Amaryllidaceæ*]. Linn., 6-*Hexandria* 1-*Monogynia*. Allied to *Eurycles*.)

Pretty Peruvian bulbs, flowering, when not in leaf, like the Guernsey lily. Offsets; sandy loam and a little peat; cold pit, or a warm border, and protected during winter.

C. Hartwegiana (Hartweg's). Yellow. Grenada. 1843.

— *Herbertiana* (Herbert's).

CALLIPRORA. (From *kalos*, beautiful, and *prora*, a front; referring to the front view of the flowers. Nat. ord., *Lilyworts*, in the Squill section [*Liliaceæ*]. Linn., 6-*Hexandria* 1-*Monogynia*.)

A pretty, hardy little bulb, with drooping, yellow flowers. Offsets; shady, peaty border.

C. lutea (yellow-flowered). 3. Yellow. August. California. 1831.

CALLIPTERIS. Synonyme of **DIPLAZIUM**, which see.

CALLISIA. (From *kalos*, beautiful. A pretty species. Nat. ord., *Spiderworts* [*Commelynaceæ*]. Linn., 3-*Triandria* 1-*Monogynia*. Allied to *Tradescantia*.)

Stove evergreen trailer; division of its creeping roots; sandy loam and a little peat. Summer temp., 60° to 70°; winter, 45° to 55°.

C. repens (creeping). 3. Blue. June. W. Ind. 1776.

CALLISTA'CHYS. (From *kalos*, beautiful, and *stachys*, a flower-spike. Nat. ord., *Leguminous Plants* [*Fabaceæ*]. Linn., 10-*Decandria* 1-*Monogynia*. Allied to *Oxylobium*.)

Greenhouse evergreen shrubs, except where otherwise specified. Cuttings of half-ripened side-shoots in April, in sand, under a bell-glass; sandy peat, fibry loam, and a little charcoal. Summer temp., 55° to 70°; winter, 40° to 45°.

C. cuneata (wedge-leaved). 3. Yellow. July. N. Holland. 1824.

— *lanceolata* (spear-leaved). 4. Yellow. June. N. Holland. 1815.

— *linariifolia* (toad-flax-leaved). 6. Yellow. June. N. Holland. 1824.

— *linearis* (narrow-leaved). 2. Red. October. Swan River. 1838.

— *longifolia* (long-leaved). 5. Red, yellow. June. Swan River. 1839.

— *ovata* (egg-shape-leaved). 4. Yellow. June. N. Holland. 1815.

— *retusa* (jagged-ended-leaved). 4. Yellow. July. N. Holland. 1830.

CALLISTE'MMA. China-Aster. (From *kalistos*, most beautiful, and *stemma*, a crown. Nat. ord., *Composites* [*Asteraceæ*]. Linn., 19-*Syngenesia* 2-*Superflua*.)

This is the common name for the China-Asters. Cassini, its author, however, changed it to *Callistephilus*; but, as botanists acknowledge that the whole order, as now arranged, is but "a temporary device," and that "the genera are needlessly multiplied," we adopt the more common name until the whole order is re-arranged. Hardy annuals. Seeds sown in a slight hotbed, in March, hardened and transplanted in May. If pricked out in a similar way to celery, they will well repay the labour. Seeds may also be sown at the end of April, where the plants are to bloom; an open situation and a rich, loamy soil will answer best.

C. hortense (garden). 1½. Blue. July. China. 1731.

— *album* (white). 1½. White. July. China. 1731.

— *rubrum* (red). 1½. Red. July. China. 1731.

— *variegatum* (variegated). 1½. Variegated. July. China. 1731.

— *multiflex* (double). 1½. Variegated. July. China. 1731.

— *brachyanthum* (short-flowered). 1½. Blue. July. China. 1731.

— *Indicum* (Indian). 1. Blue. July. E. Ind. 1820.

CALLISTEMMA CULTURE.—*Propagation.*

— These, being annuals, must be increased by seed every year. It should be saved from the best-formed and most double flowers. Those with quilled flowers are most esteemed. The colours should also be taken into consideration in saving seed. The self-colours should be clear, divided, and bright; such as have striped blooms ought to have the colours well defined, not run into each other, but distinctly separated.

Soil.—The soil should be light and

moderately rich ; and the situation where they are to bloom should be fully exposed to the sun. They make beautiful beds in the parterre, but are not so lasting as some other flowers.

Culture.—Sow the seeds in March, on a gentle hotbed, either in pots or on a bed of earth laid upon the heating material at least six inches thick ; transplant the seedlings as soon as the frosts are over, either in beds of separate colours, in mixtures, or in patches, in the general flower-border. Whichever way is determined upon, the soil should be prepared by the addition of a portion of fresh loam and very much decayed dung, well mixed with the original soil.

Diseases.—China-Asters are subject to die off suddenly. There is no remedy, when this occurs, but to pull up the sickly plants, and remove the soil ; put in some fresh, and replant from the reserve stock—a stock that ought always to be kept ready for such occasions.

Insects.—The green fly sometimes during a dry season attacks these plants. Either sprinkle with tobacco-water or Scotch snuff, to destroy them. Do this in the evening of a fine day, and wash it off in the morning with the syringe.

CALLISTE'MON. (From *kalistos*, most beautiful, and *stemon*, a stamen ; referring to the graceful, long, scarlet stamens. Nat. ord., *Myrtleblossoms* [Myrtaceæ]. Linn., 12-*Icosandria* 1-*Monogynia*. Allied to *Leptospermum*.)

Greenhouse evergreen shrubs, from New Holland, with pea-like blossoms. Seeds sown in a hotbed, in March ; cuttings of firm, but not solid, wood, in sandy loam, under a bell-glass, in April or May ; turfy peat, sandy and fibry loam, and a few pieces of charcoal. Summer temp., 50° to 70° ; winter, 40° to 45°.

C. brachyandrum (short-stamened). 3. Yellow. October. 1848.

— *formosum* (handsome). 5. 1824.

— *lanceolatum* (spear-leaved). 10. Crimson. June. 1788.

— *leptostachyum* (slender-spiked). 6. Green. June. 1820.

— *linearifolium* (narrow-leaved). 10. Red. May. 1820.

— *lineaire* (narrow). 6. Scarlet. June. 1728.

— *lopanthum* (crest-flowered). 6. Purple. June. 1800.

— *margina'tum* (bordered). 6. 1816.

— *microphyllum* (small-leaved). 5. 1824.

— *mycrostachyum* (small-spiked). 5. Red. March. 1836.

— *pheniceum* (purple). 3. Purplish. March. 1843.

— *pinifolium* (pine-leaved). 6. Green. June.

— *pu'gens* (stinging). 6. May. 1827.

— *rigidum* (stiff). 5. Cream. April. 1800.

— *rugosum* (small-wrinkled). 6. Pink. May. 1821.

C. salignus (willow-leaved). 6. June. 1788.

— *scaber* (rough). 4. July. 1820.

— *semperflo'rens* (ever-blooming). 6. Crimson. April. 1818.

— *speciosum* (showy). 10. Crimson. April. 1822.

— *viminale* (twiggy). 10. Red. April. 1800.

— *viridiflorum* (green-flowered). 5. Green. July. 1818.

CALLI'TRIS. (From *kalos*, beautiful ; referring to the whole plant. Nat. ord., *Conifers* [Pinaceæ]. Linn., 21-*Monæcia* 13-*Polyandria*. Allied to *Thuja*.)

The wood of *C. quadrivalvis* is in great demand by the Turks, who use it for the ceilings and floors of their mosques, as they believe it to be indestructible. Greenhouse, evergreen, cypress-like trees. Seeds and cuttings, under a hand-light, in autumn, and protected by a cold pit ; sandy loam, generally protected under a glass in winter, though there seems reason to believe they would flourish out of doors, in the warmer parts of England, nearly as well as several of the *Cypresses*.

C. cupressiformis (cypress-like). 20. N. Holland. 1826.

— *quadrivalvis* (four-valved). 20. Apetal. September. Barbary. 1815.

— *trique'tra* (three-sided). Apetal. April. Cape of Good Hope. 1820.

CALLU'NA. (From *kalluno*, to adorn ; in reference both to the beauty of the Heather, and to its use as a scrubbing-brush or broom. Nat. ord., *Heathworts* [Ericaceæ]. Linn., 8-*Ocandria* 1-*Monogynia*.)

Calluna vulgaris, the common Heather, and all its varieties, are the best bee-flowers of our native Flora. The *C. vulgaris* is a native of many parts of the British Islands, and its flowers are purple, opening in April ; but there are the double-blossomed, the white, the scarlet, the red, the decumbent, the spiked, the downy, and variegated varieties. See *Erica*.

CALLUS is the matter exuded from the edges of the wound of a plant in the process of healing. It is exuded from the horizontally-communicating cells of the plant ; and, in cuttings, it is from and through this exuded matter that the roots and the perpendicular vessels connected with them proceed.

CALOCY'CLUS. (From *kalos*, beautiful, and *cheilos*, a lip ; referring to the beauty of the labellum, or lip. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-*Gynandria* 1-*Monogynia*. Allied to *Listera* and *Neottia*.)

Orchids are only apparently monandrous. There are, in fact, three filaments, firmly grown together in the column, the centre one bearing the pollen, and the other two are barren. Greenhouse terrestrial orchids. Divisions of the plant ; sandy loam and turfy peat, enriched with a little lumpy, old cow-dung. Encouraged to grow, when done flowering, by heat and moisture ; kept cool and dry after they are pretty well matured, and heat given again when to be started into bloom. Summer temp., 50° to 75° ; winter, 45° to 50°.

- C. campestris* (field). 3. Green, brown. N. Holland. 1824.
 — *paludosus* (marsh). 3. Brown. N. Holland. 1823.

CALOCHORTUS. (From *kalos*, beautiful, and *chortus*, grass; referring to the leaves. Nat. ord., *Lilyworts* [Liliaceæ]. Linn., 6-*Hexandria* 6-*Polygynia*. Allied to the Tulip and Fritillaria.)

The gayest of our hardy or half-hardy bulbs, introduced by the unfortunate and intrepid Douglass from Colombia. The finest of them have been lost; but such beautiful plants cannot long remain in the wilderness. Half-hardy bulbs. Offsets; sandy loam and peat, in equal proportions. If planted out, the bulbs should be taken up and dried before winter; if in pots, keep in a cold pit, and pot afresh when the bulbs begin to grow.

- C. elegans* (elegant). 1. White. June. Colombia. 1826.
 — *luteus* (yellow-petaled). 1. Yellow-spotted. September. California. 1831.
 — *macrocarpus* (large-fruited). 2. Purple. August. California. 1826.
 — *nitidus* (shining). 3. Purple. August. California. 1826.
 — *splendens* (splendid-flowered). 1½. White-spotted. August. California. 1832.
 — *venustus* (handsome-flowered). 1½. Lilac. August. California. 1836.

CALODENDRON. (From *kalos*, beautiful, and *dendron*, a tree. Nat. ord., *Rueworts* [Rutaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Diosma*.)

One of those beautiful *Diosma*-looking genera which abound in our Cape Colony, remarkable alike for their pretty flowers and for their powerful and generally offensive odour. The settlers call them Bucku-plants. Greenhouse tree. Cuttings of half-ripened wood in sand, under a bell-glass, and with a little bottom-heat; sandy loam. Summer temp., 50° to 75°; winter, 40° to 50°.

- C. Capensis* (Cape). 40. Pink. Cape of Good Hope. 1789.

CALONYCTION. (From *kalos*, beautiful, and *nyx*, night; in reference to their flowering in the night-time. Nat. ord., *Bindweeds* [Convolvulaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Convolvulus*.)

These night-flowering *Bindweeds* are the Midnight Lilies of travellers. Stove evergreen climber. *Convolvulus*-looking, but opening its flowers at night. Seeds in heat, in March; cuttings of side-shoots, in April or May, in sandy soil, and in bottom-heat; peat and loam. Summer temp., 60° to 85°; winter, 50° to 58°.

- C. pseudomuricata* (false-point-covered). Purple. July. E. Ind. 1827.

CALOPHACA. (From *kalos*, beautiful, and *phake*, a lentil; in reference to the lentil-like flowers. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 17-*Dialdelphia* 4-*Decandria*. Allied to *Cytisus*.)

Loudon says of it, "Grafted standard high on the common Laburnum, it forms an object at

once singular, picturesque, and beautiful." Hardy deciduous shrub. Seeds sown in March; or cuttings, under a hand-light; common, light loam.

- C. Wolgarica* (Wolga). 2. Yellow. May. Siberia. 1786.

CALOPHANES. (From *kalos*, beautiful, and *phaino*, to appear. Nat. ord., *Acanthuds* [Acanthaceæ]. Linn., 14-*Didynamia* 2-*Angiospermia*. Allied to *Ruellia*.)

Hardy herbaceous perennial. Dividing the roots in March; loam and peat, or sandy loam.

- C. oblongifolia* (oblong-leaved). 1. Blue. August. Carolina. 1832.

CALOPHYLLUM. (From *kalos*, beautiful, and *phylon*, a leaf. Nat. ord., a section of *Guttifers* [Clusiaceæ]. Linn., 15-*Tetradynamia*.)

Stove evergreen trees; cuttings of half-ripened shoots in sand, under a glass, and in bottom-heat; peat and loam. Summer temp., 60° to 85°; winter, 50° to 55°.

- C. calaba* (calaba-tree). 30. White. India. 1780.
 — *inophyllum* (fibrous-leaved). 90. White. E. Ind. 1793.
 — *spurius* (spurious). 30. White. Malabar. 1800.

- *Tacamahacca* (Tacamahaca). 30. White. Bourbon. 1822.

CALOPOGON. (From *kalos*, beautiful, and *pogon*, a beard; in reference to the fringe on the lip, or labellum. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-*Gynandria* 1-*Monandria*. Allied to *Pogonia*.)

Greenhouse orchid. Division of its tuberous roots; peat and loam. Summer temp., 55° to 75°; winter, 45° to 50°.

- C. pulchellus* (pretty). 1½. Purple. July. N. Amer. 1771.

CALOSCORDUM. (From *kalos*, beautiful, and *scordon*, garlic. Nat. ord., *Lilyworts* [Liliaceæ]. Linn., 6-*Hexandria* 1-*Monogynia*. Allied to *Milla*.)

Half-hardy little bulb. Offsets; common soil. Though a native of Chusan, it is likely to require but little protection in winter.

- C. nerineiflorum* (nerine-flowered). 3. Rose, purple. Chusan. 1843.

CALOSTEMMA. (From *kalos*, beautiful, and *stemma*, a crown. Nat. ord., *Amaryllids* [Amaryllidaceæ]. Linn., 6-*Hexandria* 1-*Monogynia*. Allied to *Coburgia*.)

Greenhouse bulbs. Offsets; sandy loam and a little leaf-mould; a cold pit, or the greenhouse in winter.

- C. album* (white). 1. White. May. N. Holland. 1824.

- *carneum* (flesh-coloured-flowered). 1. Flesh. Australia. 1837.

- *Cunninghami* (Cunningham's). May. Moreton Bay.

- *luteum* (yellow). 1. Yellow. November. N. Holland. 1819.

- *purpureum* (purple). 1. Purple. November. N. Holland. 1819.

CALOTHAMNUS. (From *kalos*, beautiful,

and *thamnus*, a shrub. Nat. ord., *Myrtle-blossoms* [Myrtaceæ]. Linn., 18-*Polyadelphia* 2-*Polyandria*. Allied to *Melaleuca*.)

Greenhouse evergreen shrubs, natives of Australia. Cuttings of young wood, firm at the base, in sand, under a bell-glass; sandy peat and fibry loam. Summer temp., 55° to 75°; winter, 38° to 45°.

C. clana'ta (club-leaved). 2. Scarlet. July. 1824.
— *gra'dilis* (slender-leaved). 3. Scarlet. July. 1803.

— *Kn'ghtii* (Knight's). Blooms all year. 1839.
— *quadri'fida* (four-cleft). 3. Scarlet. July. 1803.
— *villo'sa* (soft-haired). 3. Scarlet. July. 1803.

CALOTIS. (From *kalos*, beautiful, and *ous*, an ear; in reference to the chaffy scales of the pappus, or seed-head. Nat. ord., *Composites* [Asteraceæ]. Linn., 19-*Syngenesia* 2-*Superflua*. Allied to *Bel-lium*.)

Greenhouse herbaceous perennial. Divisions; sandy loam. Summer temp., 55° to 70°; winter, 35° to 45°.

C. cuneifo'lia (wedge-leaved). 1. Blue. June. N. Holland. 1819.

CALOTROPIS. (From *kalos*, beautiful, and *tropis*, a keel; referring to the flower. Nat. ord., *Asclepiads* [Asclepiadaceæ]. Linn., 5-*Pentandria* 2-*Digynia*. Allied to *Schubertia*.)

C. giga'ntea is the *Akund-yercum*, or *Mudar-plant* of India, whose thick, milky juice is a powerful purgative. Stove evergreen shrubs. Seeds in a slight hotbed, in March; cuttings of half-ripened shoots in sand, under a glass, in April; good, common, fibry loam and a little sand. Summer temp., 50° to 80°; winter, 40° to 50°.

C. giga'ntea (gigantic). 6. White. August. B. Ind. 1690.

— *pro'cera* (tall). 10. White. April. Persia. 1714.

CAL'THA. Marsh Marigold. (A contraction of *kalathos*, a goblet; referring to the form of the flower. Nat. ord., *Crowfoots* [Ranunculaceæ]. Linn., 13-*Polyandria* 6-*Polygynia*. Allied to *Hel-lebore*.)

Hardy herbaceous perennials. Seeds, or divisions, in March or April; common soil of the border. A moist place, near a running stream, is where they flourish most.

C. ar'ctica (arctic). Yellow. May. N. Amer. 1827.
— *asarifo'lia* (asarum-leaved). 4. Yellow. April. Unilas. 1824.

— *bifo'ra* (two-flowered). 4. White. June. N. Amer. 1827.

— *flabellifo'lia* (fan-leaved). 1. Yellow. April. N. Amer. 1818.

— *Gowen'na* (Gowen's). North Ind. 1848.

— *inte'grima* (entire-leaved). Yellow. May. N. Amer. 1827.

— *leptose'pala* (small-sealed). 1. Yellow. May. N. Amer. 1827.

— *mi'nor* (smaller). 4. Yellow. May. Britain.

— *na'tans* (floating). Yellow. May. Siberia. 1816.

C. palu'stris (common-marsh). 1. Yellow. April. Britain.

— *flo're-pte'no* (double-flowered). 1. Yellow. April.

— *par'nassifo'lia* (parnassia-leaved). 4. Yellow. April. N. Amer. 1815.

— *ra'dicans* (rooting). 4. Yellow. April. Scotland.

— *sagitta'la* (arrow-leaved). 4. Green, yellow. November. Cape Horn. 1840.

CALTROPS. *Tri'bulus*.

CALYCA'NTHUS. Allspice. (From *kalyx*, a calyx, and *anthos*, a flower; in reference to the coloured calyx. Nat. ord., *Calycanths* [Calycanthaceæ]. Linn., 12-*Icosandria* 3-*Polygynia*.)

The bark of *C. flo'ridus*, from its aromatic fragrance, is used as a substitute for cinnamon in the United States of North America. Hardy deciduous shrubs. Layers, as fruit is seldom produced; rich, sandy loam, in a shady situation. It is said, that by pulling out the terminal bud of a shoot two flower-buds are produced; and thus the flowering season is prolonged.

C. fe'rtilis (fertile). 3. Brown. June. Carolina. 1726.

— *flo'ridus* (flowery). 6. Brown. June. Carolina. 1726.

— *asplenifo'lius* (asplenium-leaved). 6. Brown. July.

— *fe'rax* (fertile-flowered). 6. Brown. July.

— *inodo'rus* (nearly-scentless). 6. Brown. July.

— *longifo'lius* (long-leaved). 6. Brown. July.

— *ova'tus* (egg-shape-leaved). 6. Brown. July.

— *variega'tus* (variegated-leaved). 6. Brown. July.

— *glaw'cus* (milky-green-leaved). 6. Brown. May. Carolina. 1726.

— *lævigat'us* (smooth-leaved). 3. Brown. June. N. Amer. 1806.

— *macrophy'llus* (large-leaved). 6. California. 1848.

— *oblongifo'lius* (oblong-leaved). 4. Brown. May. N. Amer. 1820.

— *occidenta'lis* (western). 74. Scarlet. September. California. 1831.

— *Pennsylvan'icus* (Pennsylvanian). 4. Brown. May. Pennsylvania. 1820.

CALYCOPHYLLUM. (From *kalyx*, calyx, and *phyllon*, a leaf; referring to a division of the calyx expanding into the form of a leaf. Nat. ord., *Cinchonuds* [Cinchonaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Bouvardia*.)

Stove evergreen shrub. Cuttings of half-ripe shoots in sand, under a bell-glass, in heat; loam, peat, and a little sand and charcoal. Summer temp., 60° to 85°; winter, 50° to 55°.

C. candidi'ssimum (whitest). 20. White. Cuba. 1830.

CALY'ULATE, having bractes so placed as to resemble an outer or additional calyx.

CALY'PTO. (From *kalypto*, to conceal; in reference to its place of growth. Nat.

ord., *Orchids* [Orchidacæ]. Linn., 20-*Gynandria* 1-*Monogynia*. Allied to *Liparis*.)

Half-hardy terrestrial orchid. Offsets from the bulbs; sandy loam and peat. Cold pit and frame, or close to the side of a wall.

C. borealis (northern). $\frac{1}{2}$. Rose, brown. January. N. Amer. 1820.

CALYPTRA'NTHEIS. (From *kalyptra*, a veil, and *anthos*, a flower; referring to the way the flower-bud is hid by the cohesion of the tips of the calyx, which falls off like a cap when the flower expands. Nat. ord., *Myrtleblossoms* [Myrtacæ]. Linn., 12-*Icosandria* 1-*Monogynia*. Allied to *Pimento*.)

The dried flower-buds of *C. aromaticus* are a good substitute for cloves. Stove evergreen trees. Layers and cuttings in heat; loam and peat. Summer temp., 60° to 85°; winter, 50° to 55°.

C. chytaculha (chytraculia). 20. White. April. Jamaica. 1778.

— *zuzygium* (zuzygium). 20. White. June. W. Ind. 1778.

CALYSTEGIA. Bearbind. (From *kalyx*, a calyx, and *stega*, a covering; in reference to the calyx being hid by two bractes, as is the case with a section of Bindweeds. Nat. ord., *Bindweeds* [Convolvulacæ]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Convolvulus*.)

C. pubescens, received from China as a double flower, has become single with Mr. Beaton.—*Cottage Gardener*, iv. 302. Hardy deciduous plants, except where otherwise mentioned. Both the creeping and twining species may be propagated by divisions of the plant and roots. Common soil.

C. Catesbyana (Mr. Catesby's). Rose. July. Carolina. 1816. Twiner.

— *Dahurica* (Dahurian). $\frac{1}{2}$. Pink. July. Dahuria. 1823. Twiner.

— *hedera'cea* (ivy-like). Rose. June. Nepaul. 1826. Half-hardy twiner.

— *marginala* (bordered). 3. Pink. July. N. Holland. 1824. Twiner.

— *pubescens* (downy). 15. Pale rose. June. China. 1844. Twiner.

— *reniformis* (kidney-shaped). Pink. June. N. S. Wales. 1822. Half-hardy.

— *se'pium* (great-hedge. Common Bindweed). 6. White. July. Britain.

— *incarnata* (red-flowered). 6. Red. July. N. Amer.

— *soldanella* (soldanella-leaved. Sea Bindweed). Flame. June. Britain. Evergreen trailer.

— *spithamea* (span). 1. White. July. N. Amer. 1796. Twiner.

— *sylvestris* (wood). 18. White. July. Hungary. 1815. Twiner.

— *tomentosa* (woolly). June. N. Amer. 1818. Trailer.

CALYTRIX. (From *kalyx*, a calyx, and *thrix*, hair; in reference to the divisions of the calyx ending in long, bristly hairs. Nat. ord., *Fringe-myrtles* [Chamelauciacæ]. Linn., 12-*Icosandria* 1-*Monogynia*.)

The calyx, in this small order, ends in awn-like hairs, or bristles, or is broken up into fringes: hence the name of *Fringe-myrtles*. They are beautiful little bushes, often not unlike *Heaths*, with the fragrance of *Myrtleblossoms*. Greenhouse evergreen shrubs. Cuttings of points of shoots, in April or May, in sand, under a bell-glass. Summer temp., 50° to 70°; winter, 35° to 45°.

C. angulara (sharp-cornered). Yellow. May. Swan River. 1842.

— *au'rea* (golden-flowered). Bright yellow. Swan River.

— *brevise'ta* (short-bristled). Pale lilac. May. Swan River. 1843.

— *ericoi'des* (heath-like). 2. White. N. Holland. 1824.

— *floribunda* (many-flowered). 4. White. N. Holland. 1820.

— *glabra* (smooth). 4. White. May. N. Holland. 1818.

— *glutino'sa* (clammy). Yellow. Purple. May. Swan River.

— *pubescens* (downy). 4. White. N. Holland. 1824.

— *sapphiri'na* (sapphire-coloured). 2. Blue. May. Swan River. 1843.

— *sca'bra* (rough-leaved and bracted). 4. White. June. South Australia. 1824.

— *variabilis* (changeable). Lilac. May. Swan River. 1842.

— *virgata* (twiggy-branched). 2. White. May. Australia. 1823.

CAMARI'DIUM. (From *camara*, an arched roof; in reference to the arched tip of the stigma. Nat. ord., *Orchids* [Orchidacæ]. Linn., 20-*Gynandria* 1-*Monandria*. Allied to *Maxillaria*.)

Stove orchid; division; shallow basket, or raised above the surface of the pots, with sphagnum, moss, and broken pots. Summer temp., 60° to 90°; winter, 55° to 65°.

C. ochroleucum (yellowish-white). 1. White. Brazil. July. Trinidad. 1823.

CAMAROTIS. (From *camara*, an arched roof; in reference to the form of the lip, or labellum. Nat. ord., *Orchids* [Orchidacæ]. Linn., 20-*Gynandria* 1-*Monandria*. Allied to *Sarcanthus*.)

Stove orchids; divisions; block of wood, or shallow pot, with plant raised above it, and the lower part fastened with moss, peat, &c. Summer temp., 66° to 90°, with moisture; winter, 55° to 65°.

C. Braziliensis (Brazilian). White. May. Brazil. 1808.

— *obtus'a* (blunt-leaved). Rose. April. India. 1844.

— *purpurea* (purple-flowered). $\frac{1}{2}$. Purple. May. E. Ind. 1837.

CAMA'SSIA. (From *Quamash*, so called by the North American Indians, who eat the bulbs. Nat. ord., *Lilyworts* [Liliacæ]. Linn., 6-*Hexandria* 1-*Monogynia*. Allied to *Scilla*, or *Squill*.)

A beautiful hardy bulb; offsets and seeds, which may be sown when ripe; sandy peat, in a shady situation.

C. esculenta (eatable). 2. Purple. July. Colombia. 1827.

CAMELLIA. (Named after *Camellus*, a Moravian Jesuit. Nat. ord., *Theads*, or *Teaworts* [Ternströmiaceæ]. Linn., 16-Monadelphia 8-Polyandria.)

A good table-oil is extracted from the seeds of *C. oleifera*. Greenhouse evergreen shrubs. Inarching and grafting, the latter mode entailing least trouble, using a slight, sweet hotbed, and shading from bright sun until the scions have taken: March and April is the best time. Cuttings of ripened shoots; every joint, if necessary, will form one, inserted firmly in the sand; set in a close, shady situation, and, after a time, placed in mild bottom-heat; peat and loam, with a little cow-dung, dried, and charcoal. Summer temp., 50° to 70°, with shade; winter 35° to 45°. By bringing forward in ainery they may be induced to flower at almost all seasons.

- C. euryoides* (eurya-like). 4. White. May. China. 1824.
 — *Japonica* (common Japan). 10. Red. May. China. 1739.
 — *a'lba semiduplex* (white semi-double). 10. White. March. China. 1822.
 — *Alberti* (Prince Albert's). Red. White. May. China. 1839.
 — *ela'ta* (tall). Bright crimson. May.
 — *imbricata* (imbricated). 10. Crimson. March. China. 1824.
 — *peoniaeflora a'lba* (peony-flowered-white). 10. White. February, China. 1820.
 — *Park'sii* (Park's). 10. Bright rose. February. China.
 — *Reevesiana* (Reeves's). 10. Crimson. September. China. 1829.
 — *ro'sea* (rose-like-flowered). 10. Rose. February. China. 1821.
 — *Sabina'sna* (Sabine's). 10. White. February. China. 1824.
 — *speciosa* (Rau'e's showy). 10. Deep red. March. China. 1824.
 — *Ki'sii* (Kiss). 10. White. May. China. 1823.
 — *maliflora* (apple-flowered). 8. Pink. China. 1818.
 — *oleifera* (oil-yielding). 10. White. May. China. 1819.
 — *reticulata* (netted). 6. Red. April. China. 1824.
 — *Sasa'nqua* (Lady Bank's-Sasan). 4. White. February. China. 1811.
 — *ple'na-a'lba* (double-white). 4. White. February. China. 1824.
 — *ple'na-ru'bra* (double-red). Red. February. China. 1818.
 — *se'mi-ple'na* (semi-double). 4. Red. February. China. 1811.

CAMELLIA CULTURE.—*Propagation.*—*By Cuttings.* The double varieties do not grow nor flower so well on their own roots. Cultivators, therefore, propagate by cuttings the original single-flowered species, and when these become plants strong enough for the purpose, inarch or graft upon them the fine double varieties. The best time to put in these cuttings is when the new wood has become nearly ripe, which generally happens about the end of June. Prepare, first, the pots, six inches wide, for the cuttings, by covering the hole at the bottom with an oyster-

shell, or a large piece of broken potsherd; place about an inch of smaller pieces upon it, and another inch of pieces no larger than peas upon them; cover these with a thin layer of moss, and then fill the pots to the top with sandy loam, sifted pretty fine; press this firmly down, and fill the pot again quite up to the brim, making it very firm. Then take the cuttings of the single-flowering species; make them about four or five inches long; cut the bottom off smoothly and level just under a bud; then cut off two of the lowest leaves, leaving as many on the cutting. Make as many ready as will fill the first pot. As soon as they are ready, insert them into the soil thickly all over the pot; place them in a cold frame, or spent hotbed, and in two or three months they will nearly every one be rooted. Then pot them off singly in 3-inch pots, in peat and sandy loam, and replace them in the frame, where they may remain till winter approaches; then to be removed into the greenhouse, and have the usual treatment of the older plants. Let them have a little extra heat during the growing season; and most of them will be ready for grafting or inarching the following season.

By Grafting.—The time from September to February. The method called tongue-grafting is the best for Camellias. (See GRAFTING.) As soon as grafted, place them under hand-glasses, upon a surface of coal-ashes, in a deep pit or shady part of the greenhouse, to remain till the grafts have united to the stocks, and begin to grow; the hand-glasses may then be removed, and the plants gradually inured to the open air, and finally placed in the greenhouse, and receive the same culture as the other plants.

By Inarching.—The time for this mode of increasing the double varieties is just before the growing season, in April. Place the stocks in a warm place, to start the sap, and, as soon as it is in motion, bring them into a position near to the variety intended to work upon. (See INARCHING.) It is a more certain mode of increase than by grafting, and also more expeditious; but the plants are generally longer-stemmed, and do not make so neat a joint as by the former mode.

Soil.—A moderate, strong, turfy loam and sandy peat, in equal parts, will grow these plants well. Some growers use

peat alone; but it is too light, and the plants do not live long in it.

Summer Culture.—The bloom will be over before summer commences. It will then be necessary to give the *Camellia* a little artificial heat, to encourage a free growth. A moist atmosphere, also, must be produced, by syringing the plants, walks, and walls every morning and evening, and keeping the floor deluged with water. Shade from bright sunshine, and give air, to reduce the temperature to 65° by day, and 55° by night. Continue this liberal treatment till the buds and the new leaves are fully formed; then give more air, and about the middle of July pot them, using plenty of drainage: and set them out of doors, behind a north wall, where the sun cannot reach them after 10 o'clock. There they may remain till the autumn.

Winter Culture.—As soon as there is the least fear of frost, prepare for housing the plants for the winter. Cleanse and repair the house, wash the pots, and top-dress the soil before arranging them in the house. Give abundance of air, both night and day, when there is no frost; and when there is frost, only just use fire enough to keep it out. This treatment is proper till the blooming-season is over. *Water* must be judiciously applied; too much or too little will cause the buds to drop off prematurely.

Insects.—The *white scale* is the most troublesome insect. Strong soap-water will destroy it. The *black fly*, also, sometimes makes its appearance, and is very injurious to the flower-buds. That and the *green fly* may be destroyed in the usual way by smoking with tobacco. The *black fly* requires a stronger dose.

Diseases.—Sometimes young plants will die suddenly, and if the roots are examined, a brownness will be observed at the ends. This arises from stagnant water, caused by imperfect drainage. To prevent it, pay particular attention to that point.

CAMOMILE, or CHAMOMILE. *A'nthemis nobilis*.

Varieties.—There are two kinds, the common single species and the double-flowering.

Soil and Situation.—They require a poor, dry soil, otherwise they are less powerful in their medicinal qualities. They will grow in almost any situation, but the more open the better.

Time and mode of Propagation.—Gene-

rally by parting the roots, and by offsets, planted from the close of February until the end of May; the earlier, however, the better, though they be planted in the autumn. Seed-sowing may be in any of the early spring months; but, as parting the roots gives much less trouble, it is generally pursued. Still, after a lapse of several years, raise fresh plants, the old ones often then declining.

Cultivation.—They should not be planted nearer to each other than eighteen inches. Water must be given moderately at the time of planting, if dry weather. If raised from seed, the seedlings require no further cultivation than to be kept free from weeds in the seed-bed, and when three or four inches high to be thinned to about six inches apart, and may remain thus until the following spring, then to be thinned and remain, or to be removed to the above-mentioned distance apart. A very small bed will supply the largest family.

Gathering.—In July the flowers are generally in perfection for gathering. The period for performing it, however, must be governed by the flowers themselves, as the best time is when they are just opened. Particular care must be taken to dry them thoroughly before they are stored, otherwise they will become mouldy. If seed be required, the only attention necessary is to leave some of the first-opening flowers ungathered: the seed will ripen early in September, when it may be dried and rubbed out.

CAMPA'NULA. Bell-Flower. (The diminutive of *campana*, a bell; literally, a little bell. Nat. ord., *Bellworts* [*Campanulaceæ*]. Linn., 5-Pentandria 1-Monogynia.)

The *annuals* are chiefly pretty, low-growing plants, the seed of which may be sown in the common border, at the end of March. The *biennials* may be sown in April or May; many of them will bloom the same year. By cuttings, a perennial habit will be given to many of them. *Perennials*, chiefly by division of the plant and roots. Those from the West Indies, New Holland, and the South of Europe, require the protection of a greenhouse, or cold pit, in winter. Even the well-known, beautiful window-plant, *C. pyramidalis*, makes a poor show in the open air in most places. Common soil for most of them; a little peat and dung for those in pots.

HARDY ANNUALS.

- C. Broussonetii*'na (Broussonet's). 1. Blue. July. Mogadore. 1825.
- *dichotoma* (forked-branched) 1. Blue. July. Sicily. 1820.
- *drabæfolia* (draba-leaved). 1. Pale blue. June. Athens. 1823.

- C. eri'nus* (erinus). 1. Pale blue. July. South of Europe. 1768.
 — *erinoi'des* (erinus-like). 1. Pale blue. July. Africa. 1823.
 — *Hermi'nii* (Hermi'nii's). 1. Blue. July. Portugal. 1823.
 — *hispidula* (rather bristly). 1. Blue. July. Cape of Good Hope. 1817.
 — *Læfi'ngii* (Læfing's). 1. Blue. July. South of Europe. 1818.
 — *Lo'rei* (Lore's). 2. Purple. June. Italy. 1824.
 — *puncta'ta* (dotted-flowered). 1. White. May. Siberia. 1813.
 — *ramosi'ssima* (branchiest). 1. Blue. July. Greece. 1820.
 — *sylo'u'tica* (wood-inhabiting). 1½. Blue. June. Nepal. 1840.

HARDY BIENNIALS.

- C. Ada'mi* (Adam's). 1. Blue. July. Caucasus. 1821.
 — *affi'nis* (allied). 2. Blue. July. South of Europe. 1824.
 — *America'na* (American). 1. Blue. July. Pennsylvania. 1763.
 — *Arme'na* (Armenian). 1. Blue. July. Russia. 1826.
 — *bellidi'folia* (daisy-leaved). 1. Blue. July. Pyrenees. 1823.
 — *betonica'folia* (betony-leaved). 1. Blue. May. Greece. 1820.
 — *cervica'ria* (throatwort). 3. Light blue. July. Germany. 1808.
 — *corymbo'sa* (corymbose). 2. Blue. May. Crete. 1820.
 — *dis'e'rgens* (spreading). 2. Blue. June. Hungary. 1814.
 — *Garga'nica* (Garganian). 1. Pale blue. July. Mount St. Ang. 1830. Trailer.
 — *lanugino'sa* (woolly-leaved). 2. Blue. May. 1814.
 — *macrosta'chya* (large-spiked). 2. Blue. June. Hungary. 1814.
 — *me'dium* (middle-sized). 4. Blue. July. Germany. 1597.
 — — *fo're-a'lbo-pl'e'no* (double-white-flowered). 3. White. July. Germany.
 — — *a'lbum* (white-flowered). 3. White. July.
 — — *fo're-purpu'rea-pl'e'na* (double-purple-flowered). 3. Purple. July. Germany.
 — — *purpu'rea* (purple). Purple. July. Germany.
 — *negle'cta* (neglected). 2. Blue. June. 1818.
 — *obli'qua* (twisted). 3. Blue. June. 1813.
 — *purvis'fo'ra* (small-flowered). 2. Blue. June. Iberia. 1819.
 — *peregr'i'na* (diffuse). 2. Blue. June. Cape of Good Hope. 1794.
 — *Sibi'rica* (Siberian). 1. Blue. July. Siberia. 1783.
 — *spatul'a'ta* (spatulate-leaved). 1. Blue. July. Greece. 1817.
 — *spica'ta* (spiked). 1. Blue. July. Switzerland. 1786.
 — *stri'cta* (upright). 2. Blue. June. Syria. 1819.
 — *thyrsoid'ea* (thyrse-flowered). 2. Blue. June. Switzerland. 1785.
 — *violaf'olia* (violet-leaved). 1. Blue. July. Siberia. 1817.

HARDY PERENNIALS.

- C. acumina'ta* (long-pointed). 3. Blue. August. N. Amer. 1826.
 — *aggrega'ta* (crowded-flowered). 2. Blue. August. Bavaria. 1817.
 — *alliarif'olia* (alliar-leaved). 1. Blue. July. Caucasus. 1803.

- C. Allio'nii* (Allioni's). 1. Blue. July. South of France. 1820.
 — *alpi'na* (alpine). 2. Blue. July. Switzerland. 1779.
 — *Alpi'ni* (Alpinus's). 1. Blue. June. Italy. 1800.
 — *angustifo'lia* (narrow-leaved). Blue. July. France. 1818.
 — *azu'rea* (blue). 2. Light blue. June. Switzerland. 1778.
 — *barba'ta* (bearded). 2. Light blue. June. Italy. 1752.
 — — *cya'nea* (dark blue). 1. Blue. July. 1836.
 — *Barreli'e'ri* (Barrelier's). 1. Blue. September.
 — *Bella'r'di* (Bellard's). 1. Blue. July. Italy. 1813.
 — *Bieberstei'na'na* (Bieberstein's). 1. Blue. June. Caucasus. 1820.
 — *Bononi'e'nsis* (Bononian). 2. Blue. August. Italy. 1773.
 — *Carolinia'na* (Carolina). Blue. August.
 — *cespito'sa* (tufted). 1. Blue. July. Austria. 1819.
 — *calyc'e'na* (large-calyxed). 1. Blue. July. Tauria. 1820.
 — *Carpa'tica* (Carpathian). 1. Blue. July. Carpathian Alps. 1774.
 — — *a'lba* (white-flowered). ½. White. June. Gardens.
 — *Cauca'sica* (Caucasian). 1. Purple. July. Caucasus. 1804.
 — *Ceni'sia* (Mount Cenis). 1. Blue. June. Switzerland. 1775.
 — *cephala'ntha* (head-flowered). 1. Blue. August. Russia. 1817.
 — *cephalo'tes* (round-headed). 1. Blue. June. 1818.
 — *cervica'roides* (cervicaria-like). 1. Blue. July. Italy. 1822.
 — *cichora'cea* (chicory-like). 2. Blue. June. Greece. 1768.
 — *colli'na* (hill). 1. Blue. July. Caucasus. 1803.
 — *colora'ta* (deep-coloured). 2. Purple. September. Sikkim Himalaya. 1849.
 — *conge'sta* (crowded). 1. Blue. July. France. 1823.
 — *crena'ta* (round-tooth-leaved). 2. Blue. July. Russia. 1820.
 — *Elati'ne* (Elatine). 1. Pale blue. July. South of Europe. 1823. Trailer.
 — *e'legans* (elegant). 1. Pale blue. July. Siberia. 1811.
 — *elli'ptica* (oval-leaved). 1. Blue. July. Hungary. 1826.
 — *erioca'rpa* (woolly-fruited). 2. Purple. June. Caucasus. 1823.
 — *exci'sa* (cut-off). 1. Blue. June. Switzerland. 1820.
 — *fo'tio'sa* (leafy). 1. Blue. July. Italy. 1826.
 — *glomera'ta* (clustered). 2. Violet. May. Britain.
 — — *fo're-a'lbo* (white-flowered). 1. White. May. Britain.
 — — *pl'e'na-a'lba* (double-white-flowered). 1. White. May. Britain.
 — — *fo'ra-pl'e'na-purpu'rea* (double-purple-flowered). 2. Pale purple. June. Gardens.
 — *fra'gilis* (fragile). Blue. August. Alps. 1826. Half-hardy.
 — — *hirsu'ta* (hairy-herbaged). 1. Blue. August. Italy. 1833.
 — *gramini'fo'lia* (grass-leaved). 1. Blue. June. Hungary. 1817.
 — *gra'ndis* (large). 3. Purple. August. N. A. 1842. Half-hardy.
 — *gummi'fera* (gum-bearing). 1. Blue. July. Caucasus. 1817.
 — *hedera'cea* (ivy-leaved). 1. Blue. May. Cape of Good Hope. 1817.

C. heterodoxa (heterodox). 1. Blue. June. Hungary. 1824.
 — *infundibulum* (funnel-flowered). 2. Purple. July. Siberia. 1825.
 — *infundibuliformis* (funnel-shaped). 2. Blue. July. Siberia. 1822.
 — *lacinia'ta* (jagged-leaved). 2. Blue. June. Greece. 1788.
 — *lactiflo'ra* (milk-flowered). 6. Whitish-blue. August. Siberia. 1816.
 — *lamiifolia* (lamium-leaved). 3. Pale yellow. June. Iberia. 1823.
 — *lanceola'ta* (spear-leaved). 1. Blue. July. France. 1819.
 — *latifolia* (broad-leaved). 4. White. July. Britain.
 — — *flore-al'bo* (white-flowered). 3. White. July.
 — *lilifolia* (lily-leaved). 3. Blue. May. Siberia. 1783.
 — *lingula'ta* (tongue-leaved). 1. Violet. July. Hungary. 1804.
 — *linifolia* (flax-leaved). 1. Blue. July. Switzerland. 1819.
 — *longifolia* (long-leaved). 4. Blue. July. Pyrenees. 1820.
 — *lyra'ta* (lyre-shaped). 2. Violet. July. South of Europe. 1823.
 — *macra'ntha* (large-flowered). 3. Purple. August. Russia. 1822.
 — — *polya'ntha* (many-flowered). 5. Blue. May. Russia. 1830.
 — *microphy'lla* (small-leaved). 1. Blue. June. Hungary. 1820.
 — *mura'lis* (wall). 1. Blue. September. South of Europe. 1835. Half-hardy.
 — *Nicae'nsis* (Nice). 1. Purple. June. Piedmont. 1820.
 — *nitida* (shining). 1. White. July. S. Amer. 1731.
 — — *flore-al'bo-ple'no* (double-white-flowered). 2. White. July.
 — *caru'lea* (blue-flowered). 1. Blue. July. N. Amer. 1731.
 — — *flore-caru'leo-ple'no* (double-blue-flowered). 2. Blue. July.
 — *no'bilis* (noble). 4. Pale purple. July. China. 1844.
 — *Nutta'llii* (Nuttall's). 1. Blue. July. N. Amer. 1829.
 — *obliquifolia* (twisted-leaved). 3. Blue. July. Italy. 1823.
 — *patula* (spreading). 1. Violet. July. Britain.
 — *persicifolia* (peach-leaved). 3. Blue. July. Europe. 1596.
 — — *al'ba* (white-flowered). 3. White. July. Europe. 1596.
 — — *al'ba-ple'na* (double-white). 3. White. July. Europe. 1596.
 — — *ple'na* (double-blue). 3. Blue. July. Europe. 1596.
 — — *gra'ndis* (large-flowered). 3. Blue. July. Europe. 1596.
 — — *ma'xima* (largest-peach-leaved). 3. Blue. July. Europe. 1596.
 — *planiflo'ra* (flat-flowered). 2. Blue. August. Siberia. 1817.
 — *pubes'cens* (downy). 1. Blue. July. Bohemia.
 — *pu'lla* (russet). 1. Blue. June. Austria. 1779.
 — *pu'mila* (dwarf). 1. Blue. July. Switzerland.
 — *pusi'lla* (diminutive). 1. Blue. June. Switzerland. 1821.
 — *pyramida'lis* (pyramidal). 4. Blue. July. Car-niola. 1594.
 — — *flore-al'bo* (white-flowered). 4. White. July. Europe.

C. quadrifida (four-cleft). 1. Blue. June. N. Holland. 1820.
 — *Raine'ra* (Rainer's). 1. Blue. July. Italy. 1826.
 — *rapu'nculus* (rampion). 3. Blue. July. Britain.
 — *rapunculo'ides* (rampion-like). 3. Blue. June. England.
 — *rhomboid'ea* (diamond-leaved). 2. Blue. July. Switzerland. 1775.
 — — *ru'bra* (red-flowered). 1. Reddish-lilac. July. Switzerland.
 — *rig'e'scens* (stiff). 1. Blue. June. Siberia. 1820.
 — *rotundifolia* (round-leaved). 3. Blue. June. Britain.
 — — *flore-al'bo* (white-flowered). 1. White. June. Britain.
 — — *flore-ple'no* (double-flowered). 2. Blue. July. Gardens.
 — *Ruthe'nica* (Russian). 2. Blue. June. Caucasus. 1815.
 — *Sarmat'ica* (Sarmatian). 2. Blue. June. Siberia. 1803.
 — *saxat'ilis* (rock). 1. Blue. May. Candia. 1763.
 — *Scheuchze'ri* (Scheuchzer's). 1. Blue. July. Europe. 1813.
 — *si'mplex* (single-stemmed). 3. Blue. July. South of France. 1819.
 — *specio'sa* (showy). 2. Purple. May. Siberia. 1825.
 — *spre'ta* (despised). 2. Blue. July. Siberia. 1820.
 — *Teno'r'ii* (Tenor's). Blue. June. Naples.
 — *tenuifolia* (fine-leaved). 1. Violet. July. Hungary. 1817.
 — *tomen'tosa* (woolly). 1. White. June. Levant. 1810.
 — *trachelium* (throatwort). 4. Blue. June. Britain.
 — — *al'ba* (white-flowered). 3. White. July. Britain.
 — — *al'ba-ple'na* (double-white-flowered). 3. White. July. Britain.
 — — *ple'na* (double-blue-flowered). 3. Blue. July. Britain.
 — *tracheloid'es* (throatwort-like). 3. Blue. July. Caucasus. 1817.
 — — *flore-purpurea-ple'na* (double-purple-flowered). 3. Purple. July.
 — *trichocalyc'ina* (hairy-calyxed). 4. Blue. July. Italy. 1823.
 — *urticifolia* (nettle-leaved). 3. Blue. August. Germany. 1800.
 — — *flore-ple'na* (double-flowered). White. July. Germany.
 — *Vande'si* (De Vande's). 1. Cream. June.
 — *veluti'na* (velvety). 1. Blue. May. South of Europe. 1826.
 — *Vida'li* (Vidal's). 1. White. August. Azores.
 — *virga'ta* (twiggy). 1. Blue. June. N. Amer. 1823.
 — *versicolor* (various-coloured). 4. Striped. July. Siberia. 1788.
 — *Waldsteinia'na* (Waldstein's). 1. Blue. June. Hungary. 1824.
 — *Zo'ysti* (Zoy's). 1. Dark blue. June. Car-niola. 1813.

GREENHOUSE.

C. au'rea (golden-flowered). 3. Yellow. August. Madeira. Evergreen shrub. 1777.
 — — *angustifolia* (narrow-leaved). 2. Yellow. August. Madeira. 1777.
 — — *latifolia* (broad-leaved). 2. Yellow. August. Madeira. 1777.
 — *Cape'nsis* (Cape). 1. Blue. July. Cape of Good Hope. 1803. Annual.

- C. cœrulea* (nodding-flowered). 1. Blue. June. Cape of Good Hope. 1904. Biennial.
 — *dehiscens* (gaping). 1. Blue. July. E. Ind. 1818. Annual.
 — *gracilis* (slender). 1. Blue. June. N. S. Wales. 1794. Biennial.
 — *litoralis* (shore). 1. Blue. April. N. Holland. 1820. Biennial.
 — *mollis* (soft). 1. Purple. June. Sicily. 1788. Herbaceous perennial.
 — *Ottoniana* (Otto's). 1. Blue. July. Cape of Good Hope. 1825. Evergreen shrub.

CAMPE'LIA. (From *kampe*, bending, and *helios*, the sun; in reference to the flowers bending round to the sun. Nat. ord., Spiderworts [Commelynacæ]. Linn., 6. *Hexandria 1-Monogynia*. Allied to *Tradescantia*.)

Stove herbaceous perennial; seeds in spring; rich loam; common stove treatment.

- C. zanonina* (*zanonia-leaved*). 2. Blue. July. W. Ind. 1759.

CAMPHORA. Camphor-tree. (From *camphor*, commercial name of its chief product. Nat. ord., Laurels [Lauracæ]. Linn., 9. *Enneandria 1-Monogynia*. Allied to *Cinnamomum*.)

Although camphor is secreted by many plants in this order, and more particularly by some species of cinnamon, the true camphor of commerce is obtained from *Camphor officinalis*, and is a product of the oil procured from the wood, branches, and leaves, by means of dry distillation. Camphor is chiefly manufactured in the Island of Formosa, and from thence sent to Canton for exportation. The hard camphor of Sumatra and the camphor-oil of Borneo are the natural secretions of *Dryobalanops camphora*. Stove evergreen tree; cuttings; peat and loam; cool stove.

- C. officinalis* (official. *Camphor-tree*). 20. Greenish-white. March. Japan. 1727.

CAMPOMANE'SIA. (Named after *Campomanes*, a Spanish naturalist. Nat. ord., Myrtleblooms [Myrtacæ]. Linn., 12. *Icosandria 1-Monogynia*. Allied to *Psidium*.)

Its yellow, sweet-scented fruit, called *palillo*, is eaten by the natives. Greenhouse evergreen shrub; cuttings of rather ripe shoots in sand, under a bell-glass. Summer temp., 50° to 70°; winter, 40° to 45°.

- C. lineatifolia* (lined-leaved). White. April. Peru. 1824.

CAMPTE'RIA. (Stove Ferns. Allied to *Pteris* and *Blechnum* [Polypodiaceæ]. Linn., 23. *Cryptogamia 1-Filices*.)

Divisions; peat and loam. Summer temp., 60° to 75°; winter, 45° to 55°.

- C. biauvillea* (two-eared). Pale yellow and brown. W. Ind. 1824.

- *nemoralis* (grove.) 1½. Brown. Isle of Bourbon. 1823.

CAMPYLA'NTHUS. (From *campylos*, a curve, and *anthos*, a flower. Nat. ord., Figworts [Scrophulariaceæ]. Linn., 2-

Diandria 1-Monogynia. Allied to *Gerardia*.)

Greenhouse evergreen shrub; cuttings in sand of half-ripened shoots, under a bell-glass; sandy peat and fibry loam. Summer temp., 65° to 70°; winter, 40° to 50°.

- C. salsoloides* (salsola-like). 1. Purple. March. Teneriffe. 1825.

CAMPY'LIA. (A section of the *Pelargoniums*.)

CANADA RICE. *Tiza'nia aquatica*.

CANARY'NA. (So named from being a native of the *Canary Islands*. Nat. ord., *Bellworts* [Campanulacæ]. Linn., 6. *Hexandria 1-Monogynia*. Allied to *Lightfootia*.)

Greenhouse herbaceous perennials; cuttings of small side-shoots in sandy loam, under a hand-light, but rather difficult to manage; division of the roots in spring, just as they begin to grow; and at that time, for a month or two, they like the assistance of a hotbed; at other times the common treatment of the greenhouse will suit them; fibry loam, turfy peat, and a good portion of sand; pots, well drained.

- C. campanula* (campanula). 3. Orange. January. 1695.

- *lævigata* (smooth). 3. Orange. January. 1825.

CANARY GRASS. *Phalaris*.

CANAVA'LIA. (From *Canavali*, its native name in Malabar. Nat. ord., *Leguminous Plants* [Fabacæ]. Linn., 16. *Monadelphia 6-Decandria*. Allied to *Diosclea*.)

Stove perennial twiner, except where otherwise specified; seeds and cuttings in sandy soil, and in heat, under a bell-glass; sandy loam. Summer temp., 60° to 75°; winter, 50° to 55°.

- C. Bonariensis* (Buenos Ayrean). 10. Purple. July. Buenos Ayres.

- *gladiata* (sword-podded). 6. White, red. June. E. Ind. 1790.

- *obtusifolia* (twisted-leaved). 6. Purple. July. E. Ind. 1820.

- — *emarginata* (end-notched-leaved). 6. Purple. July. E. Ind. 1800.

- *rosea* (rose-coloured). 3. Purple. July. Jamaica. 1812. Evergreen creeper.

- *rutilans* (shining). Scarlet. 1847. Greenhouse evergreen twiner.

CANDLEBERRY MYRTLE. *Myrica*.

CANDO'ILEA. (Named after the great botanist, *Decandolle*. Nat. ord., *Dilleniads* [Dilleniaceæ]. Linn., 18. *Polyadelphia 2-Polyandria*.)

Greenhouse evergreen shrubs, from Australia; cuttings in sandy peat, under a glass; sandy peat and fibry loam. Summer temp., 55° to 70°; winter, 40° to 45°.

- C. Bruno'nis* (Brown's). 6. Yellow. May. 1837.

- *cuneiformis* (wedge-shaped). 7. Yellow. July. 1824.

- *Hugel'ii* (Hugel's). 6. Yellow. May. 1837.

- *tetra'nda* (four-stamened). 7. Yellow. June. 1842.

CANDY CARROT. *Athama'n'ta Matthi'ola.*

CANDY-TUFT. *Ibe'ris.*

CANEI'LA. (From *canna*, a reed; the form of the inner bark when peeled off. Nat. ord., *Canellads* [Canellaceæ]. Linn., 11-Dodecandria 1-Monogynia.)

This is the wild cinnamon of the West Indies, so called on account of its aromatic fragrance. Canella, or white wood bark, yields, by distillation, a warm, aromatic oil, which is often mixed with the oil of cloves in the West Indies. Stove ever-green trees; cuttings of ripe shoots in sand, under a glass, and in bottom-heat, in April or May; sandy loam and fibry peat. Summer temp., 60° to 80°; winter, 50° to 55°.

C. alba (white-wood-bark). 40. White. W. Ind. 1735.

— *laurifo'lia* (laurel-leaved). 30. White. S. Amer. 1820.

CANKER. This disease is accompanied by different symptoms, according to the species of the tree which it infects. In some of those whose true sap contains a considerable quantity of free acid, as in the genus *Pyrus*, it is rarely accompanied by any discharge. To this dry form of the disease it would be well to confine the term *canker*. In other trees, with sap abounding in astringent or gummy constituents, it is usually attended by a discharge. In such instances it might strictly be designated *ulcer*. This disease has a considerable resemblance to the tendency to ossification, which appears in most aged animals, arising from their marked tendency to secrete the calcareous saline compounds that chiefly constitute their skeletons. The consequence is, an enlargement of the joints and ossification of the circulatory vessels and other parts—phenomena very analogous to those attending the cankering of trees. As in animals, this tendency is general throughout their system; but, as is observed by Mr. Knight, “like the mortification in the limbs of elderly people,” it may be determined, as to its point of attack, by the irritability of that part of the system.

This disease commences with an enlargement of the vessels of the bark of a branch or of the stem. This swelling invariably attends the disease when it attacks the apple-tree. In the pear the enlargement is less, yet is always present. In the elm and the oak sometimes no swelling occurs; and in the peach we do not recollect to have seen any. The swelling is soon communicated to the wood, which, if laid open to view on its first appearance by the removal of the

bark, exhibits no marks of disease beyond the mere unnatural enlargement. In the course of a few years, less in number in proportion to the advanced age of the tree, and the unfavourable circumstances under which it is vegetating, the swelling is greatly increased in size, and the alburnum has become extensively dead; the bark above it cracks, rises in discoloured scales, and decays even more rapidly than the wood beneath. If the canker is upon a moderately-sized branch, the decay soon completely encircles it, extending through the whole alburnum and bark. The circulation of the sap being thus entirely prevented, all the parts above the disease perish.

Trees injudiciously pruned, or growing upon an ungenial soil, are more frequently attacked than those which are advancing under contrary circumstances. The oldest trees are always the first attacked of those similarly cultivated. The golden pippin, the oldest existing variety of the apple, is more frequently and more seriously attacked than any other. The soil has a very considerable influence in inducing the disease. If the sub-soil be an iron gravel, or if it is not well-drained, the canker is almost certain to make its appearance amongst the trees they sustain, however young and vigorous they were when first planted.

Bruises and wounds of all kinds usually are followed by canker in the wounded part, if the tree is tending to this disease.

All these facts before us unite in assuring us that the canker arises from the tree's weakness, from a deficiency in its vital energy, and consequent inability to imbibe and elaborate the nourishment necessary to sustain its frame in vigour, and much less to supply the healthy development of new parts.

It is quite true that over-luxuriant trees are particularly liable to this disease; but over-luxuriance is really a demonstration that the tree does not digest and secrete its juices healthily.

If over-luxuriance threaten to introduce canker, the best remedy is to remove some of the main roots of the tree, and to be particularly careful not to add any manure to the soil within their range. On the contrary, it will be well if the continued exuberant growth shows the necessity for the staple of the soil to be reduced in fertility by the admix-

ture of one less fertile, or even of drift-sand. If there be an excess of branches, the saw and the pruning-knife must be gradually applied. It must be only a tree of very weak vital powers, such as is the golden pippin, that will bear the general cutting of the annual shoots. A vigorous variety would exhaust itself the following year in the production of fresh wood. Nothing beyond a general rule for the pruning can be laid down. Keep a considerable vacancy between every branch, both above and beneath it, and especially provide that not even two twigs shall chafe against each other. The greater the intensity of light, and the freer the circulation of air amongst the foliage of the tree, the better the chance for its healthy vegetation. If the disease being in a fruit-tree be a consequence of old age, it is probably premature, and induced by injudicious management; for very few of our varieties are of an age that insure to them decrepitude. We have never yet known a tree, unless in the last stage of decay, that could not be greatly restored by giving it more air and light, by careful heading in pruning, improvement of the soil, and cleansing the bark.

If the soil, by its ungenial character, induces the diseases, the obvious and only remedy is its amelioration; and, if the sub-soil is the cause of the mischief, the roots must be prevented striking into it. In all cases it is the best practice to remove the tap-root. If the trees are planted shallow, as they ought to be, and the surface kept duly fertile, there is not much danger of the roots striking into the worst pasturage of the sub-soil.

Scrubbing the bark of the stem and branches with a mixture of soapsuds and urine, and, where any pruning has taken place, keeping the wounds covered with a mixture of clay and cow-dung, are the best local applications. We once thought resinous plasters the best; but subsequent experiments have altered our opinion.

The *canker in the auricula* is a rapidly-spreading ulcer, which, destroying the whole texture of the plant where it occurs, prevents the rise of the sap. Some gardeners believe it to be infectious, and therefore destroy the specimen in which it occurs, unless it be very valuable; but this we believe to be erroneous, the reason of the disease appearing to be infectious, or epidemic, being, that it occurs to

many when they are subjected to the injurious treatment.

It appears to be caused by the application of too much water, especially if combined with super-abundant nourishment. Therefore, although cutting out the decaying part, when it first appears, and applying to the wound some finely-powdered charcoal, will effect a cure, if the disease has not penetrated too deeply, yet it will be liable to return immediately, if a less forcing mode of culture be not adopted. No auricula will suffer from this disease if it be shifted annually, and the tap-root at the time of moving be shortened, a thorough system of draining being adopted, and excessive damp during the winter being prevented by proper shelter.

Parsley, grown in a poor soil, is also liable to canker in the winter. Mr. Barnes says he never found any application which eradicated this disease so effectually as a mixture, in equal parts, of soot and slacked lime thrown over the plants. The cure is complete in a few days, the vigour of the plants restored, indicating that this species of ulceration arises from deficient nourishment.

The tubers of the *potato*, also, are liable to the speck, black spot, or *canker*, a disease which we once thought occasioned by the calcareous earth, lime, or chalk contained by the soil; but, on more lengthened observation, we find it in all soils, and in seasons characterized by opposite extremes of wetness and dryness. Hence we are induced to consider that the disease arises from some defect in the sets employed, or to potatoes being grown too often on the same site. It is quite certain, that in ground tired of potatoes, the disease most extensively appears. This suggests that it is occasioned by a deficiency of some constituent in the soil, a suggestion confirmed by the fact, that in the fields of the market-gardeners near London, which are supplied without stint with the most fertilizing manure, this disease of the potato is comparatively unknown.

The stems of succulent plants, such as the cacti, mesembryanthemums, and the balsam, as well as the fruit of the cucumber and melon, and the stalk of the grape, are all liable to *canker* in some form.

CA'NNA. Indian Shot. (The Celtic name for a cane, or reed. Nat. ord.,

*Maranth*s [Marantacæ]. Linn., 2-Dian-dria 1-Monogynia.)

Stove herbaceous perennials. Divisions of the root; seed sown in hotbed; rich, open, loamy soil. Summer temp., 60° to 80°; winter, 50° to 55°.

- C. Achiras* (Achiras). 3. Dark red. August. Isle of Mendoza. 1829.
 — *angustifolia* (narrow-leaved). 2. Scarlet. April. S. Amer. 1824.
 — *aurantiaca* (orange). 4. Orange. December. Brazil. 1824.
 — *carnea* (flesh-coloured). 4. Flesh. December. Brazil. 1822.
 — *coccinea* (scarlet). 2. Scarlet. December. S. Amer. 1731.
 — *compacta* (compact). 2. Red. April. E. Ind. 1820.
 — *crocea* (saffron-coloured). 2. Red. May. 1823.
 — *denudata* (naked). 2. Scarlet. June. Brazil. 1818.
 — — *latifolia* (broad-leaved). 3. Red. May. Brazil. 1818.
 — *discolor* (two-coloured-leaved). 10. Scarlet. November. Trinidad. 1827.
 — *edulis* (eatable). 3. Red. September. Peru. 1820.
 — *esculenta* (esculent). 4. Red. December S. Amer. 1822.
 — *excolta* (lofty). 16. Scarlet. January. Brazil. 1820.
 — *flaccida* (weak). 5. Red. July. South Carolina. 1788.
 — *gigantea* (gigantic). 5. Red, yellow. December. South Europe. 1809.
 — *glauca* (milky-green). 2. Yellow. January. S. Amer. 1730.
 — — *rubro lutea* (yellow and red). 4½. Yellowish-red. August. Jamaica. 1834.
 — — *rufa* (reddish-brown). 2. Brown. July. S. Amer.
 — *Indica* (Indian). 2. Scarlet. December. India. 1570.
 — *maculata* (spotted). 2. Reddish-yellow. December. India.
 — *iridiflora* (iris-flowered). 6. Red. December. Peru. 1816.
 — *juincea* (rush-like). 1. Red. May. Indies. 1820.
 — *Lagunensis* (Laguna). 5. Yellow. September. Laguna. 1828.
 — *Lamberti* (Lambert's). 4. Scarlet. May. Trinidad. 1819.
 — *lanceolata* (spear-leaved). 3. Red. December. Brazil. 1825.
 — *lanuginosa* (woolly). 6. Scarlet. April. Marant. 1823.
 — *latifolia* (broad-leaved). 10. Pink. December. Brazil. 1820.
 — *limbata* (bordered). 3. Red. December. Brazil. 1818.
 — *lutea* (yellow). 2. Yellow. October. E. Ind. 1829.
 — *occidentalis* (western). 3. Reddish-yellow. June. W. Ind. 1822.
 — *orientalis* (eastern). 4. Red. June. E. Ind. 1820.
 — — *flava* (yellow). 4. Yellow. June. E. Ind. 1820.
 — — *maculata* (spotted). Scarlet, yellow. August. E. Ind. 1570.
 — *pallida* (pale-flowering). 4. Pale yellow. June. W. Ind. 1820.
 — — *latifolia* (broad-leaved). 3. Yellow. June. W. Ind. 1820.
 — *patens* (spreading). 3. Reddish-yellow. May. Rio Janeiro. 1778.

C. pedunculata (long-flower-stalked). 6. Orange. October. 1820.

- *polymorpha* (many-formed). 3. Red. December. S. Amer. 1825.
 — *Reevesii* (Reeve's). 5. Yellow. May. China. 1835.
 — *rubra* (red). 3. Red. December. W. Ind. 1820.
 — *rubricaulis* (red-stemmed). 3. Red. May. 1821.
 — *sanguinea* (bloody). 4. Red. December. S. Amer. 1820.
 — *speciosa* (showy). 3. Red. August. S. Amer. 1820.
 — *stylvestris* (wild). 5. Scarlet. December. S. Amer. 1820.
 — *variabilis* (variable). 3. Red. December. India. 1822.
 — *Warszewiczii* (Warszewicz's). 3½. Scarlet. Costa Rica. 1849.

CANNON-BALL TREE. *Le'cythis*.

CANTERBURY BELLS. *Camp'nula me'dium*.

CA'NTHIUM. (From *Cantix*, its Malabar name. Nat. ord., *Cinchonads* [Cinchonacæ]. Linn., 5-Pentandria 1-Monogynia. Allied to Psychotria.)

Besides its beauty, it is one of those remedial agents for which Cinchonads are so much celebrated. A stove evergreen shrub. Cuttings of half-ripened shoots in sandy soil, under a glass; rich, fibry, sandy loam. Summer temp., 60° to 70°; winter, 40° to 45°.

C. dubium (doubtful). 3. White. July. E. Ind. 1824.

CA'NTUA. (*Cantu* is the Peruvian name. Nat. ord., *Phloxworts* [Polemoniaceæ]. Linn., 5-Pentandria 1-Monogynia.)

Greenhouse evergreen shrubs. Cuttings in sand, under glass; sandy loam and peat. Winter temp., 40° to 45°.

- C. bicolor* (two-coloured). 4. Reddish-yellow. May. Peru. 1846.
 — *busifolia* (box-leaved). 4. Rosy. April. Peruvian Andes. 1849.
 — *pyrifolia* (pear-leaved). 3. Cream. March. Peru. 1846.

CAPE JASMINE. *Garde'nia flo'rida*.

CAPE PHILLY'REA. *Cassi'ne Cape'nsis*.

CA'PPARIS. Capér-tree. (From *kabar*, the Arabic name for capers. Nat. ord., *Capparids* [Capparidacæ]. Linn., 13-Polyandria 1-Monogynia.)

The flower-buds of *C. spinosa* form a well-known pickle. Stove evergreen shrubs, except where otherwise specified. Cuttings of ripe shoots in sand, under a glass, in moist heat; sandy loam and fibry peat. All require protection, and most of them the usual treatment of the plant-stove.

- C. acuminata* (long-pointed-leaved). 6. White. E. Ind. 1822.
 — *Ægyptiaca* (Egyptian). 3. White. Egypt. 1822.
 — *amygdali'na* (almond-like). 6. White. W. Ind. 1818.
 — *aphylla* (leafless). 4. White. E. Ind. 1822.
 — *auriculata* (eared). 6. White.

- C. Brassii* (Brass's). 4. White. Gold Coast. 1793.
 — *Breynia* (Breynius's). 11. White. W. Ind. 1752.
 — *Chinensis* (Chinese). 4. White. July. S. Amer. 1827.
 — *cynophallophora* (dog-phallus-bearing. *Bay-leaved*). 8. Green, white. W. Ind. 1752.
 — *Eustachia* (St. Eustach's). 6. Striped. St. Eustach. 1822.
 — *ferruginea* (rusty). 4. White. Jamaica.
 — *frondosa* (leafy). 7. Green. Carthage. 1806.
 — *herbacea* (herbaceous). 2. White. Tauria. 1818. Herbaceous half-hardy.
 — *Jamaicensis* (Jamaica). 4. White. Jamaica. 1793.
 — *linearis* (narrow-leaved). 15. White. W. Ind. 1793.
 — *Maria* (Marianne Island). 4. White. Timor. 1820.
 — *odoratissima* (sweetest-scented). 6. White. Caraccas. 1814.
 — *ovata* (egg-shape-leaved). 3. White. July. South of Europe. Half-hardy deciduous.
 — *peltata* (shield-leaved). 6. White. Trinidad. 1827.
 — *pulcherrima* (fairest). 10. White. Carthage. 1700.
 — *saligna* (willow-leaved). 8. White. Santa Cruz. 1807.
 — *sepia* (hedge). 4. White. E. Ind. 1823.
 — *spino* (common-spiny). 3. White. June. South of Europe. 1596. Half-hardy deciduous.
 — *tenuisiliqua* (slender-podded). 6. White. Caraccas. 1823.
 — *torulosa* (twisted-podded). 6. White. W. Ind. 1822.
 — *triflora* (three-flowered). 4. White. S. Amer.
 — *undulata* (waved). 6. White.
 — *verrucosa* (warty-podded). 8. White. Carthage. 1820.
 — *Zeylanica* (Ceylon). 6. White. Ceylon. 1819.

CAPRIFOLIUM. Honeysuckle. (From *caper*, a goat, and *folium*, a leaf; poetically, goat-leaf, for its climbing habit. Nat. ord., *Caprifoliaceæ* [Caprifoliaceæ]. Linn., 5-Pentandria 1-Monogynia. Allied to *Lonicera*.)

All deciduous and twiners, except where otherwise specified. Cuttings of ripened shoots taken off in autumn, and inserted in a shady border; tender and scarcer kinds should have the assistance of a hand-light, as the wood is generally pithy. The most successful mode of propagating out of doors is by layers in autumn, after the leaves have commenced falling. Common soil.

HARDY.

- C. dioicum* (dicacious). 6. Purple. June. N. Amer. 1776.
 — *Douglasii* (Douglas's). 20. Orange. July. N. Amer. 1824. Climber.
 — *Etruscum* (Etruscan). 15. Orange. May. Italy.
 — *flavum* (yellow). 10. Yellow. May. Carolina. 1810.
 — *gratum* (pleasant). 20. Red. July. N. Amer. 1730. Evergreen.
 — *hirsutum* (hairy-leaved). 20. Yellow. May. Canada. 1822.
 — *hispidulum* (rather bristly). Rose. July. S. Amer. 1833.
 — *Italicum* (Italian). 10. Purple, yellow. June. England.

- C. Italicum rubrum* (red Italian). 10. Red. June. South Europe.
 — *longiflorum* (long-flowered). Yellow, white. July. China. 1826. Climber.
 — *occidentale* (western). 20. Orange. July. Ft Vancouver. 1824.
 — *periclymenum* (woodbine). 20. Yellow. June. Britain.
 — *Belgica* (Dutch). 20. Yellow. June.
 — *quercifolium* (oak-leaved). 20. Yellow, red. June.
 — *serotinum* (late-red). 20. Yellow, red. June.
 — *variegatum* (variegated). 15. Yellow, red. June. Britain.
 — *sempervirens* (evergreen). 15. Scarlet. June. N. Amer. 1656. Evergreen.
 — *Brownii* (Brown's). 20. Bright scarlet. May.
 — *major* (larger-flowered). 20. Scarlet. May.
 — *minus* (less. *Trumpet*). 15. Scarlet. June. Carolina. 1656.
 — *tubulosum* (cylindrical). Mexico. 1846.

HALF-HARDY.

- C. Chinense* (China). 30. Orange. August. China. 1806. Evergreen.
 — *ciliolum* (hair-fringed). 6. Yellow. June. Missouri. 1825.
 — *implexum* (interwoven). 8. Red, yellow. July. Minorca. 1772. Evergreen.
 — *Balearicum* (Balearic). 8. Cream. June. Minorca.
 — *Japonicum* (Japanese). 15. Red. June. China. 1806. Evergreen.
 — *Nepalense* (Nepal). 15. Orange. July. Nepal. 1807. Evergreen.

CAPSIUM. Chili Pepper. (From *kapto*, to bite; referring to its pungency. Nat. ord., *Nightshades* [Solanaceæ]. Linn., 5-Pentandria 1-Monogynia.)

Cayenne pepper is the ground seeds of *Capsicum*. Seeds sown in a hotbed, in March, and, after being picked off finally, potted, to be grown in a house, such as a vinery, or transplanted against a wall, or any sheltered place out of doors.

HARDY ANNUALS.

- C. angulosum* (angular-fruited). 1. White. June. India.
 — *annuum* (annual). 1. White. June. India. 1548.
 — *cordiforme* (heart-shaped). 1. White. June. India.
 — *longum* (long-fruited). 1. White. June. India. 1548.
 — *tetragonum* (four-angled). 1. White. June. India.

STOVE EVERGREEN SHRUBS.

- C. baccatum* (berried). 3. White. June. 1731.
 — *bicolor* (two-coloured). 4. Purple. June. W. Ind. 1804.
 — *cerasiflorum* (cherry-flowered). 2. White. June. 1823.
 — *cerasiforme* (cherry-shaped). 1. Red, yellow. June. W. Ind. 1739. Annual.
 — *caeruleascens* (bluish). Purple. June. S. Amer. 1827.
 — *conicum* (conical-fruited). 2. White. June. Guiana. 1820. Annual.
 — *conoides* (cone-like). 2. White. April. India. 1750.

- C. frutescens* (shrubby). 1. Pale yellow. July. India. 1656.
 — *tortulosum* (rather-twisted). 2. White. E. Ind. 1820.
 — *globiferum* (globe-bearing). 2. White. June. Guiana. 1824.
 — *grossum* (large). 1. White. July. India. 1752. Biennial.
 — *bifidum* (two-cleft). White. May. E. Ind. 1758.
 — *globosum* (globe-fruited). 1. White. July. E. Ind.
 — *Havanense* (Havanah). White. May. Havanah. 1826.
 — *lutum* (yellow-fruited). 1. White. July. E. Ind. 1820.
 — *micranthum* (small-flowered). 3. White. May. Brazil. 1820.
 — *microcarpon* (small-fruited). 2. White. May.
 — *Milleri* (Miller's). 1. White. June. W. Ind. 1824. Annual.
 — *minimium* (smallest). White. May. E. Ind. 1728.
 — *ovatum* (egg-fruited). 3. White. July. 1824.
 — *pendulum* (pendulous). 2. White. May. 1750.
 — *pyramidalis* (pyramidal). 2. White. May. Egypt. 1750.
 — *Sinense* (Chinese). 2. White. July. China. 1807.
 — *sphaericum* (globular-fruited). 3. White. May. 1807.
 — *tomatiforme* (tomato-shaped). 1½. Whitish. July. Biennial.
 — *ustulatum* (burnt). 2. White. June. Chili. Annual.

CAPSICUM. For pickling purposes the following are the species and varieties usually employed:—

Cap'sicum annuum (Guinea pepper), the long-podded, short-podded, and oval short-podded. *C. cerasiforme* (cherry pepper), cherry-shaped red and yellow-podded. *C. grossum* (bell pepper).

Soil and Situation.—They do best in a light, rich loam, and against a fence or wall. Hence they are often grown within an enclosure devoted to hotbed-forcing.

Time and mode of Sowing.—Sow towards the end of March or beginning of April. Sow in pots or pans, and place in a hotbed, with the shelter of a frame; but, in default of a stove, hotbed, or frame, they may be raised under hand-glasses on a warm border, the sowing, in such case, being deferred until settled warm weather, in May. The seed covered a quarter of an inch deep. When the plants have still their seed-leaves, thin to four inches apart, and those removed plant in four-inch pots, three in each, and keep them in a moderate hotbed, being shaded from the meridian sun, and moderately watered with tepid water until they have taken root; but little shading will be required if the roots of the seedlings are carefully moved, and in

the afternoon just before shutting up. During the whole of their continuance beneath a frame, air must be admitted freely, to prevent their being drawn; and, as May advances, they must be accustomed gradually to an uncovered situation, by taking off the glasses during the day, and by degrees leaving them open of an evening: this prepares them for their final removal at the close of that month, or early in June. Those raised in a border beneath hand-glasses must also be thinned as directed above, and those removed planted in a similar situation, or, in default of hand-glasses, beneath a paper frame or matting. The same may be adopted for the plants from the hotbeds, if all other conveniences are wanting. When planted out finally, set them two feet asunder, screened from the sun, and water freely until rooted. Continue the watering in dry weather throughout their growth. They flower during July or beginning of August, and the pods are ready to be gathered for pickling at the close of this last month, or early in September.

To obtain Seed.—A plant bearing some of the forwardest and finest fruits of each variety must be preserved, that it may be ripe before the frost commences, the first of which generally kills the plants. When completely ripe, cut the pods, and hang up in the sun, or in a warm room, until completely dry, and keep the seed in them until wanted for sowing.

CARAGANA. Siberian Pea-tree. (From *Caragan*, the name of *C. arborescens* among the Mogul Tartars. Nat. ord., *Leguminous Plants* [Fabaceae]. Linn., 17-*Diadelphia* 4-*Decandria*. Allied to *Colutea*.)

These handsome shrubs inhabit the whole of north-eastern Asia, from Peking in China, westward, to the banks of the Volga. They are increased principally in the nurseries, by grafting on *C. arborescens*, which is a deciduous tree; but all the others are deciduous shrubs. The larger-growing species are best propagated by seeds sown in spring, or by cuttings of the roots. Shrubby, low plants by seed and layers; and the rarer, Chinese, Siberian, and drooping kinds by grafting in spring; sandy loam.

- C. Altagana* (Altagana). 3. Yellow. May. Siberia. 1789.
 — *arborescens* (tree-like). 15. Yellow. May. Siberia. 1752.
 — *inermis* (unarmed). 10. Yellow. May. Siberia. 1820.
 — *arenaria* (sand). 1. Yellow. June. Siberia. 1802.
 — *Chamlagu* (Chamlagu). 4. Yellow. May. China. 1773.

- C. ferox* (fierce). 2. Yellow. June. Siberia.
— frutescens (shrubby). 2. Yellow. April. Siberia. 1752.
— angustifolia (narrow-leafted). 6. Yellow. April. Odessa.
— latifolia (broad-leafted). 6. Yellow. April.
— grandiflora (large-flowered). 1. Yellow. June. Iberia. 1823.
— Gerardiana (Gerard's). Himalayas. 1839.
— jubata (maned). 2. Pink. April. Siberia. 1796.
— macracantha (large-thorned). 2. Yellow. June. Siberia.
— microphylla (small-leaved). 2. Yellow. May. Russia. 1819.
— mollis (soft). 2. Yellow. May. Tauria. 1818.
— Mongolica (Mongolian). Yellow. April. Tary. 1826.
— pygmaea (pigny). 1. Yellow. May. Siberia. 1751.
— arenaaria (sand). 1. Yellow. April.
— Redowski (Redowski's). 3. Yellow. June. Siberia. 1827.
— praecox (early). 3. Yellow. April.
— spinosa (thorny). 6. Yellow. May. Siberia. 1775.
— tragacanthoides (goat's-thorn-like). 4. Yellow. May. Siberia. 1816.
— triflora (three-flowered). Greenish - yellow. 1847.

CARALLIA. (From *Carallie*, its name in India. Nat. ord., *Mangroves* [Rhizophoraceæ]. Linn., 11-Dodecandria 1-Monogynia.)

This, like the rest of the Mangroves, grows only along the tropical shores, where they form impenetrable thickets, and send down roots from the branches, like the Banian-tree. In time such roots raise the main trunks high above their original level; hence the usual name of the order—Rhizophoraceæ, or root-bearers. Cuttings and treatment as for *Canthium*.

- C. lucida* (shining). 20. Yellow. E. Ind. 1820.

CARALLUMA. (Its Indian name. Nat. ord., *Asclepiads* [Asclepiadaceæ]. Linn., 5-Pentandria 2-Digynia. Allied to *Stapelia*.)

Stove evergreen shrubs, natives of East Indies. Cuttings well dried, and laid, rather than fastened, among gravelly and limy, rubbishy soil, until they strike; sandy loam, broken pots, and lime-rubbish; little water given, unless when growing freely. Summer temp., 60° to 85°; winter, 45° to 55°, and dry.

- C. ascendens* (ascending). 2. Pink. July. 1804.
— crenulata (scalloped). $\frac{1}{2}$. Pale yellow. 1829.
— ambriata (fringed). $\frac{1}{2}$. Pale yellow. 1829.
— umbellata (umbelled). Pink. 1804.

CARAMBOLA-TREE. *Averrhoa carambola*.

CARA'NDAS. *Cari'ssa Cara'ndas*.

CARA'PA. (From *Caraipe*, its name in South America. Nat. ord., *Meliads* [Meliaceæ]. Linn., 10-Decandria 1-Monogynia.)

The flowers are small, but numerous; and, like the rest of the Meliads, this genus possesses bitter astringent and tonic qualities. Stove trees. Cut-

tings of ripened shoots in sand, under a glass, and in bottom-heat; loam and peat. Summer temp., 60° to 85°; winter, 55° to 60°.

- C. Guianensis* (Guiana). 20. Yellow. Guiana. 1824.
— Guineensis (Guinea). 20. Yellow. Sierra Leone. 1793.
— Moluccensis (Moluccas). 20. Yellow. E. Ind. 1820.
— procera (tall). 40. Yellow. W. Ind.

CA'RAWAY. *Ca'rum ca'ru*.

CARDA'MINE. Lady's Smock. (From *kardamon*, watercress; referring to the acrid flavour. Nat. ord., *Crucifers* [Brassicaceæ]. Linn., 15-Tetradynamia. Allied to *Arabis*.)

Like the rest of the Crucifers, *Cardamine* is antiscorbutic and stimulant. All that we describe are hardy herbaceous perennials, except *C. thalictroides*, which is an annual; seeds in any common soil, provided it be moist; the herbaceous and marshy plants by division; marshy, peaty soil.

- C. amara* (bitter). 1. White. April. Britain. Aquatic.
— asarifolia (asarum-leaved). 1. White. June. Italy. 1710.
— bellidifolia (daisy-leaved). 1. White. April. Scotland.
— alpina (alpine). 1. White. April. Austria. 1658.
— chelidonia (celandine-leaved). 1. White. June. Italy. 1739.
— glauca (milky-green). 1. White. June. Calabria. 1827.
— latifolia (broad-leaved). 2. Purple. June. Spain. 1710. Marsh-plants.
— macrophylla (large-leaved). 1. Purple. May. Siberia. 1824.
— pratensis (meadow-cuckoo-flower). 1. Purple. April. Britain. Marsh-plant.
— pleina (double-flowered). 1. Purple. April. Marsh-plant.
— pleina-alba (double-white-flowered). 1. White. April. Marsh-plant.
— thalictroides (thalictum-like). 1. White. June. Piedmont. 1818. Annual.
— trifolia (three-leaved). 2. White. May. Switzerland. 1629.
— uliginosa (bog). 1. White. April. Tauria. 1819. Marsh-plant.

CARDAMOM. *Alpinia Cardamomum*.

CARDINAL FLOWER. *Lobelia cardinalis*.

CARDON. (*Cynara cardunculus*.) The stalks of the inner leaves, when rendered tender by blanching, are used in stews, soups, and salads.

Soil and Situation.—A light, rich, unshaded soil, dug deep, and well pulverised, suits it best.

Time and mode of Sowing.—Sow at the close of April, those plants raised from earlier sowing being apt to run; for a late crop, a sowing may be performed in June. Best practice is to sow in patches of three or four, six inches apart, in rows four feet apart, to be thinned finally to one in each place, the weakest being re-

moved. If, however, they are raised in a seed-bed, they will be ready for transplanting in about eight or ten weeks from the time of sowing, and must be set at similar distances.

The seed must be covered about half an inch. When about a month old, thin the seedlings to four inches apart, and those removed may be pricked out at a similar distance. When of the age sufficient for their removal, they must be taken up carefully, and the long, straggling leaves removed. The bed for their reception must be dug well, and laid out in trenches, as for celery, or a hollow sunk for each plant; but, as they are liable to suffer from excessive wet, the best mode is to plant on the surface, and form the necessary earthing in the shape of a ridge. Water abundantly at the time of planting, as well as subsequently, until the plants are established; and also in August, if dry weather occurs, regularly every other night, as this is found to prevent their running to seed. When advanced to about eighteen inches in height, which, according to the time of sowing, will be in August, and thence to October, the leaves must be closed together, a hay-band wound round each, and then earthed up like celery. It must be done on a dry day. As the plants grow, use more hay-bands and more earthing, until blanched about two feet high. The blanching is completed in about eight or ten weeks. If litter is thrown over the tops during severe weather, the plants will continue good through the winter.

To obtain Seed.—Being a native of Candia, seed in this country seldom comes to maturity; but, in dry seasons, a few plants may be set in a sheltered situation of the April sowing, not earthed up, but allowed the shelter of mats or litter in frosty weather. The flowers make their appearance about the beginning of July, and the seed should ripen in September.

CARDU'NCELLUS. (The diminutive of *cardunculus*, the Cardoon. Nat. ord., *Compositæ* [Asteraceæ]. Linn., 19-*Syngenesia* 1-*Æqualis*. Allied to *Carthamus*.)

Hardy herbaceous perennials, natives of France. Division of the roots; common soil.

C. mitissimus (most gentle). 3. Blue. June. 1776.
—*vulgaris* (common). 4. Blue. May. 1734.

CAR'DUUS. Thistle. (From *ard*, the Celtic word for a prickle, or sharp point;

referring to the spines of the Thistle. Nat. ord., *Compositæ* [Asteraceæ]. Linn., 19-*Syngenesia* 1-*Æqualis*.)

Notwithstanding the proverbial weediness of Thistles, there are some handsome garden-species among them. All hardy. Seeds or divisions; common soil.

ANNUALS.

- C. albidus* (whitish). 2. Purple. July. Tauria. 1816.
- *Ara'bicus* (Arabian). 4. Purple. July. Arabia. 1789.
- *argenteus* (silvered). 1. Purple. July. Egypt. 1789.
- *cine'reus* (grey). 3. Purple. July. Caucasus. 1818.
- *clavatus* (club-shaped). 2. Purple. July. Canaries. 1827.
- *leuca'nthus* (white-flowered). 2. Purple. July. Spain. 1816.
- *leuco'graphus* (white-painted). 2. Purple. June. Italy. 1752.
- *peregrinus* (diffuse). 2. Purple. July. 1816.
- *Volge'nsis* (Volga). 2. Purple. July. Volga. 1820.

BIENNIALS.

- C. ala'tus* (winged). 2. Purple. July. 1812.
- *ca'ndicans* (hoary). 3. Purple. July. Hungary. 1805.
- *Carlina'efolius* (Carlina-leaved). 2. Purple. July. Pyrenees. 1804.
- *Carlino'des* (Carlina-like). 1. Purple. July. Pyrenees. 1784.
- *collinus* (hill). 3. Purple. July. Hungary. 1818.
- *corymbo'sus* (corymbose). 4. Purple. July. Naples. 1824.
- *cris'pus* (curled). 2. Purple. July. Europe. 1804.
- *hamulo'sus* (hooked-spined). 5. Purple. June. Hungary. 1802.
- *lanugino'sus* (woolly). 3. Purple. July. Armenia. 1820.
- *monto'sus* (mountain). 3. Purple. July. South of Europe. 1820.
- *myriaca'nthus* (myriad-spined). Purple. July. N. Africa. 1836.
- *nigre'scens* (blackish). 4. Purple. July. South of France. 1819.
- *persona'ta* (burdock). 4. Purple. July. Austria. 1776.
- *seminu'dus* (half-naked). 3. Purple. Caucasus. 1819.
- *uncina'tus* (hooked). 6. Purple. July. Tauria. 1817.

HERBACEOUS PERENNIALS.

- C. affinis* (allied). Pink. July. Naples. 1830.
- *alpe'stris* (alpine). 1½. Purple. July. Croatia. 1805.
- *atriplicifolius* (atriplex-leaved). 10. Purple. August. Siberia. 1784.
- *arctio'des* (burdock-like). 2. Purple. July. Carniola. 1804.
- *argemone* (argemone-leaved). 1½. Purple. July. Pyrenees. 1810.
- *crassifolius* (thick-leaved). 2. Purple. July. 1805.
- *deflora'tus* (unflowered). 6. Red. August. Austria. 1570.
- *dubius* (doubtful). 2. Purple. July. 1816.
- *macrocephalus* (large-headed). 2. July. Numidia. 1827.

- C. medius* (intermediate). 2. Purple. June. Piedmont. 1819.
 — *onopordioides* (onopordum-like). 1½. Purple. July. Iberia. 1818.
 — *orientalis* (eastern). 2. Purple. July. Iberia. 1804.
 — *parviflorus* (small-flowered). 2. Purple. July. South of Europe. 1781.
 — *podacanthus* (foot-spined). 3. Purple. July. France. 1819.
 — *pycnoccephalus* (dense-headed-Italian). 1½. Purple. July. South of Europe. 1739.

CARE'YA. (Named after Dr. Carey, a celebrated divine and Indian linguist, who devoted his leisure hours to gardening and botany. Nat. ord., *Barringtoniads* [Barringtoniaceæ]. Linn., 16-Monadelphia 8-Polyandria.)

These splendid plants are fit associates to Barringtonia and Gustavia. Stove-plants, from the East Indies; cuttings, and dividing the roots; sandy loam one part, to two parts fibry peat, with pieces of charcoal, and plenty of drainage, and careful watering. Summer temp., 60° to 85°; winter, 55° to 60°.

- C. arbores* (tree). 8. Red and yellow. 1823.
 — *herbacea* (herbaceous). 1. Red and white. July. 1808. Herbaceous perennial.
 — *sphaerica* (round-fruited). 3. Red. 1803. Evergreen shrub.

CA'RICA. Papaw-tree. (Named from an erroneous idea that it was a native of Caria. Nat. ord., *Papayads* [Papayaceæ]. Linn., 22-Diæcia 9-Decandria.)

One of the tropical fruits grown in our stoves, more for curiosity than for use. The Papaw fruit (*C. papaya*) is eaten, when cooked, in some parts of South America, but not much esteemed by Europeans. Stove trees; cuttings of ripe shoots in sandy soil, under a bell-glass, and in sweet bottom-heat; rich, loamy soil. Summer temp., 60° to 85°; winter, 50° to 60°.

- C. cauliflora* (stem-flowering). 20. Green. Caraccas. 1806.
 — *citriflormis* (orange-formed). 20. Yellowish. Lima. 1820.
 — *microcarpa monoïca* (small-fruited-monœcious). 20. Whitish-green. 1818.
 — *papa'ya* (common papaw). 20. Green. July. India. 1690.
 — *pyriflormis* (pear-shaped). 20. Pinkish. Peru. 1823.
 — *spino'sa* (prickly). 20. Whitish-green. Guiana. 1821.

CARI'SSA. (The derivation is not ascertained; but *krishna-pakphula* is the Sanscrit name of *C. Carandras*. Nat. ord., a section of *Dogbanes* [Apocynaceæ]. Linn., 5-Pentandria 1-Monogynia.)

The milky juice of this and others in this order of Dogbanes is manufactured into India-rubber. The fruit of *C. Carandras* furnishes a substitute for red-currant jelly. Stove trees and shrubs; cuttings of ripe wood in sand, under a glass, in bottom-heat; peat and loam. Summer temp., 60° to 85°; winter, 50° to 55°.

- C. Carandras* (Carandas). 15. White. July. E. Ind. 1790.

- C. lanceolata* (spear-leaved). 6. White. July. N. Holland. 1822.
 — *ovata* (egg-leaved). 15. White. August. N. Holland. 1819.
 — *spinarum* (spiny). 20. White. July. E. Ind. 1819.
 — *xyloperon* (bitter-wooded). 12. White. July. Mauritius. 1820.

CARLI'NA. (Named after Charlemagne. Nat. ord., a section of *Composites* [Asteraceæ]. Linn., 19-Syngenesia 1-Æqualis.)

Hardy herbaceous perennials, except where otherwise specified. Seeds of annuals in April; seeds and divisions of perennials. The Cape species requires protection. Common soil.

- C. acanthifolia* (acanthus-leaved). 2. White. June. Carniola. 1818.
 — *acutifolia* (stemless). 3. White. June. Italy. 1640.
 — *caule'scens* (short-stemmed). 1. White. June. Switzerland. 1819.
 — *aggregata* (clustered). 2. White. July. Hungary. 1804.
 — *Biebersteinia'sa* (Bieberstein's). 2. August. Caucasus. 1816.
 — *corymbosa* (corymbose). 3. Yellow. July. South of Europe. 1640.
 — *lanata* (woolly). 3. Purple. June. South of Europe. 1683. Hardy annual.
 — *lyrata* (lyre-shaped-leaved). 1. June. Cape of Good Hope. 1816. Greenhouse biennial.
 — *racemosa* (racemed-flowered). 3. Yellow. July. Spain. 1658. Hardy biennial.
 — *St'cula* (Sicilian). 1. July. Sicily. 1827. Hardy biennial.
 — *simplex* (singly-flowered). 1½. White. June. Hungary. 1816.

CARLUDO'VICA. (Named after Charles IV., of Spain, and Louisa, his queen. Nat. ord., *Screw-Pines* [Pandanaeæ]. Linn., 21-Monœcia 9-Polyandria.)

The leaves of all the Screw-Pines are set spirally round the stem, which gives it a cork-screw appearance; hence the name of this order. Stove perennials; suckers; sandy loam. Summer temp., 60° to 80°; winter, 50° to 55°.

EVERGREEN CLIMBERS.

- C. funifera* (rope-bearing). 4. White. Trinidad. 1824.
 — *Jamaicensis* (Jamaica). 4. White. Jamaica. 1825.

HERBACEOUS SHRUBS.

- C. angustifolia* (narrow-leaved). 3. Greenish-yellow. Peru. 1818.
 — *latifolia* (broad-leaved). 3. Green. July. Peru. 1818.
 — *palmeta* (hand-leaved). 3. White. July. Peru. 1818.

CARMICHAEL'IA. (Named after Capt. H. Carmichael, author of the *Flora of Tristan da Acunha*. Nat. ord., *Leguminous plants* [Fabaceæ]. Linn., 17-Diadelphia 4-Decandria. Allied to *Indigofera*.)

Greenhouse evergreen shrub; cuttings of side-shoots under glass, in sand, in April or May; sandy peat, and a very little fibry loam. Summer temp., 55° to 60°; winter, 40° to 45°.

C. australis (southern). 2. Blue. June. N. Holland. 1800.

CARNATION. (*Dianthus caryophyllus*.) *Propagation by Layers.*—The latter end of July and beginning of August is the best time for this operation. By performing it thus early the layers become rooted in time to be taken off, potted, and well established before winter. Having a very sharp, small knife, some fresh-sifted compost of light loam and leaf-mould in equal parts, and some hooked pegs (the best are made of the fronds of the common Fern, or, when they cannot be had, of birch or hazel-twigs), proceed to dress the stem intended to be layered by trimming off the bottom leaves, leaving about six on, nearest to the top. Do not shorten those left on. If there are more in the pot than can be conveniently layered, take the surplus ones off, and make pipings of them. Dress all intended to be layered in one pot before any are tongued. This prevents breakage and confusion. Then tongue the layer; to do which, hold the first layer on one side, and with the knife make an incision on the under-side, just below the third joint, bringing the knife slanting upward through the joint; then drop the knife, and with the other hand take up a hooked peg, thrust the sharp end into the soil, catching the layer with the hooked end of the peg as it descends; press it gently but firmly down to the soil. Proceed with the layer next to the one done, and so on all round the plants, till the first pot is finished; then cover the slit joint an inch deep with the compost, and proceed to the next pot or plant. It is not advisable to water the newly-layered plants the first day, because withholding it will give time for the wounds to heal a little.

Soil.—The best compost to grow and bloom carnations in is three parts loam, taken from an upland pasture, the top turf four inches thick; lay it up in a heap for twelve months, turning it over once a month, to sweeten and pulverize, and looking out diligently for the *wire-worm*, the grand end of the carnation. One part two-years-old cow-dung, and one part well-decayed vegetable-mould. Mix them together three months before using, and turn them over together three or four times.

Spring and Summer Culture.—About the end of March is the right time to put

the carnations into their blooming pots. They are generally grown in *pairs*: but this is not a necessary point. The pots for blooming should be eleven inches across, well drained with broken potsherds, and the compost not sifted: but in using it keep a sharp eye upon the *wire-worm*. As soon as all are potted, set them upon a bed of coal-ashes, in a sheltered part of the garden; give water when necessary. Whenever the plants begin to send up their flower-stems, place sticks to them of the size and height they will require when in bloom. Tie very slackly, or the stems will become knee'd, and perhaps break; to prevent which, pay attention constantly to the ties.

When the buds are nearly full-grown, thin out the least promising, leaving the most plump and healthy. Just before they break, or burst, place an India-rubber ring round each bud, or a ribband of bass-mat; this prevents the buds bursting on one side. Shade them from sun and heavy rains.

Autumn and Winter Culture.—As soon as the bloom is over, cut down the flower-stems, and expose the plants to the full sun and rain. Take off the layers as soon as they are rooted; put them into 5-inch pots, in pairs; place them in cold frames, shading them from the sun until they make fresh roots; then expose them again to the weather till the winter frosts begin to take place; and then keep the lights on, protecting them from heavy rains and frost; but, on all favourable occasions, during mild, fine weather, draw the lights entirely off during the day, shutting them up at night, and covering them up securely whenever there is an appearance of severe frost.

Forcing.—Carnations may be successfully forced, choosing the freest growers, potting them singly, early, into 8-inch pots, and placing them in gentle heat (55°) early in January. There is a variety called the *Tree Carnation*, which answers best for forcing. Lately there have been imported from the Continent several handsome and full-flowering Tree Carnations, which are a great addition to our winter flowers. To bloom these in the greatest perfection, they should not be allowed to flower the first year, but should be re-potted, when rooted, into 8-inch pots, the tops nipped off to make them bushy, and no flower-stems allowed to rise till the

autumn following. They will then send up several stems, and flower all the winter in the greenhouse or conservatory. Tree Carnations are propagated by *pipings*; and, as the same method of propagating by pipings is proper for the florists' varieties, we shall describe it briefly. It is done as follows:—Prepare as many pots as are wanted for the purpose; fill them nearly full of the compost above described, and the remaining space with silver-sand; prepare the piping by cutting off a stem quite smooth at the third joint, then carefully slit the joint just through, and insert the pipings in the sand pretty thickly all over the pot; place them upon a gentle hot-bed, on a layer of sifted coal-ashes, or river sand; place the lights on, and shade from the sun till they are rooted, then harden them off gradually, and pot them into small pots; if Tree Carnations, singly; if show varieties, in pairs of the same kind, and re-pot them as directed above.

Exhibiting.—In June, or beginning of July, the plants will be considerably advanced towards flowering, and they should be put upon stages or stands. The posts, or supporters, of the stage should be surrounded at the bottom by small cups of water, to exclude slugs; and, by placing the plants on a stage, having the platform eighteen inches or two feet high, the flowers are viewed to more advantage; and if there is erected an awning over the top, supported four feet above the platform, the flowers, being screened from the heat of the mid-day sun, and defended from heavy rains, are continued much longer in beauty.

With respect to the cups of water above mentioned, they are earthen or leaden, about fifteen inches wide, and three or four deep, having a hollow or vacancy in the middle six inches wide, like a socket, to receive the posts; and is formed by a raised rim in the middle, equal in height to that of the circumference, and the hollow, or socket, so formed as to receive the bottom of the posts quite through to the ground; and the space between the outer and inner rim is filled with water, so that each post standing in the middle of such a cistern sufficiently guards the plants against creeping insects.

For want of a covered stage to screen the flowers, you may contrive a small

umbrella, or round-spreading cap, either of tin or canvass, nine or ten inches diameter, one for each plant, having a socket in the middle, to receive the tops of the support-sticks. Those umbrellas which are formed of tin are the best; but, if you make them of canvass, first make little round frames, having the rim formed with slips of wire, cane, &c., the above width, with cross slips of the same materials, contriving a socket of lead or tin in the middle, for the support-stick to go quite through, as just observed; and upon these frames paste or sew canvass, which paint with oil-colour. Either covers are placed over the flowers by running the support-stick up through the hole, or socket, in the middle, and resting the cap upon a piece of wire or peg, put across through holes in the stick at such a height from the flower as to screen it from the sun and rains.

Give attention to continue to tie up neatly the flower-stalks of the plants as they advance in stature. When they are arrived at their full height, support them erect at top with wires, having a small eye, or ring, at one end, for the reception of the flower-stalk; so put the other end into holes made in the support-sticks. These wires should be five or six inches long, and several holes are made in the upper part of the sticks; the first at the height of the bottom of the flower-pod, the other above that, an inch or two distant; and place the wires in the holes lower or higher, that the eye or ring may be just even with the case of the calyx, to support the flower in an upright position; and, by drawing the wire less or more out, the flower is preserved at such distance from the support as shall seem necessary to give it proper room to expand; and if two or three of the like wires are placed also in the lower parts of the support-sticks, placing the stem of the flowers also in the eye of the wires, all the tyings may be cut away.

To have as large flowers as possible, clear off all side-shoots from the flower-stem, suffering only the main or top-buds to remain to flower.

When the flowers begin to open, attendance should be given to promote their regular expansion, they being apt to burst open on one side; and, unless assisted by a little art, as by India-rubber rings already noticed, the flower will become very irregular. Therefore, attending

every day at that period, observe, as soon as the calyx begins to break, to cut it a little open at two other places in the indentings at top, with narrow-pointed scissors, that the openings may be at equal distances, observing if one side of any flower comes out faster than another, to turn the pot about, that the other side of the flower be next the sun, to assist the more regular expansion of the flower.

Likewise, to bloom any flowers as spreading as possible, place paper collars round the bottom of the flower, on which to spread the petals to their utmost expansion. These collars are made of stiff white paper, cut circular, about three or four inches diameter, having a hole in the middle, to receive the bottom of the petals withinside of the calyx, the leaves of which are made to spread flat for its support; and then spread or draw out the petals upon the collar to their full width and extent, the longest undermost, and the next longest upon these, and so of the rest quite to the middle, observing that the collar must nowhere appear wider than the flower when they begin to burst.

Diseases.—These plants are subject to the *mil dew*; and, when it is not checked in time, it not only destroys the plants it first appears on, but will, in time, spread to the whole stock. As soon as it is observed, sprinkle the affected plants with sulphur, and keep the air inside the frames as dry as possible. The *black spot* is only mildew in a severer form. Cut off the leaf on which it appears, and treat as for mildew.

Insects.—The great enemy is the *wire-worm*, which eats away the inside of the stem, and destroys the plant. Search for it in the soil previously to using, and bury there, after the plants are potted in the blooming-pots, some slices of potatoes. Examine these daily, and destroy the wire-worms you may find in the baits. The *green fly*, also, attacks carnations, sometimes even in the frames. These are easily destroyed by fumigating with tobacco-smoke. When the plants are blooming they sometimes appear. Destroy them then by sprinkling with Scotch snuff. The *red spider* is often troublesome in dry springs. The best remedy is washing every leaf with a small sponge, repeating the operation till the plants are quite cleared.

CAROLINEA. *Pachira*. (Named after

Sophia Caroline, Margravine of Baden. Nat. ord., *Sterculiads* [Sterculiaceæ]. Linn., 16-Monadelphia 8-Polyandria. Allied to *Adansonia*.)

Stove trees. Cuttings of ripened wood in sand, under a bell-glass, in heat; rich, loamy soil. Summer temp., 60° to 85°; winter, 50° to 55°.

C. alba (white). 20. July. Brazil. 1817.

— *insignis* (showy). 20. Red. W. Ind. 1796.

— *minor* (less). 20. Red, yellow, green. July. Guiana. 1798.

— *princeps* (princely). 30. Red, yellow, green. W. Ind. 1787.

CARPINUS. Hornbeam. (From *car*, the Celtic for wood, and *pinx*, a head; in reference to the wood being used to make the yokes of oxen. Nat. ord., *Mastworts* [Corylaceæ]. Linn., 5-Pentandria 1-Monogynia.)

C. betulus is the only one of the Hornbeams that is of much use of ornament; it is one of the best nurse-plants in young plantations, and for making fast-growing hedges. Hardy deciduous trees. Seeds sown when ripe, or kept in dry sand, until the following spring; suckers and layers for the varieties; layers for the common plants; but they are inferior to plants raised from seed. Common soil.

C. americana (American). 20. N. Amer. 1812.

— *betulus* (common). 30. March. Britain.

— *incisa* (cut-leaved). 15. March.

— *quercifolia* (oak-leaved). 30. May. Europe.

— *variegata* (variegated). 20. March. Britain.

— *au'rea-variegata* (golden-variegated-leaved). 20. March. 1845.

— *orientalis* (eastern). 12. Levant. 1739.

CARPOCAPSA POMONELLA. The Codlin Moth.



Every grower of the apple knows how liable his fruit is to be "worm-eaten." He finds basketsful of "windfalls" even in the calmest weather, and that the cause of the loss is a small grub, which has fed upon the pulp of the fruit; but how, when, or where these grubs got there he has not the slightest notion. As it is one of the most injurious of insects to one of our most useful of fruits, we shall give more full particulars than usual, borrowing them chiefly from Mr. Westwood's essay in the *Gardeners' Ma-*

gazine, iv. 235, N. S. The grub in question is the larva of the Codlin Moth, *Carpocapsa pomonella* of some entomologists, but *Tinea pomonella*, *Pyralis pomona*, and *Tortrix pomoniana* of others. It is upon the pulpy parts of the apple that the grub chiefly feeds. When, however, it has nearly attained its full size, it feeds on the pips of the apple, which, thus attacked in its most vital part, soon falls to the ground. No sooner is the apple fallen, than the grub quits the fruit for the passage which it had previously gnawed. A hundred apples may be opened, and not more than two or three larvæ observed within them; the orifice by which they have escaped being open, and not concealed by a little mass of brown grains, which is the case with those apples from which the larva has not made its escape. These little grains are the excrement of the larvæ, which are also to be seen in the burrows formed by them within the apple. The grub is of a dirty-white colour, with a brown head, varied with darkish-brown marks. The body is slightly hairy; the first segment after the head is whitish, with minute brown spots; the other segments are of a pale colour, with about eight small tubercles on each; each of the three anterior segments is furnished with a pair of legs; and there are a pair of feet at the extremity of the body. In its early state it is of a dirty-reddish or flesh colour. The caterpillar wanders about on the ground till it finds the stem of a tree, up which it climbs, and hides itself in some little crack of the bark. The fall of the apple, the exit of the grub, and its wandering to this place of safety usually take place in the night-time. It gnaws away the bark a little, and, having made a smooth chamber, spins a little milk-white silken case, in which, after a few weeks, it becomes a chrysalis; and in this state it remains through the winter; and until the following June, when the moth comes forth, and is to be seen hovering round the young apples on a midsummer evening. The moth itself, of which we give a cut, of the natural size and magnified, is a very beautiful insect, about three-quarters of an inch in expanse: fore wings ashy-brown, with very numerous, rather obscure, darker, transverse streaks, united into a broadish band towards the base, giving them a damasked appearance. On the hind border of the fore

wings is a large reddish-brown patch, spotted, and surrounded with a golden mark. The hind wings reddish-brown, tinged with yellow. The moth lays its eggs in the eyes of the young apples, one only in each, by inserting its long ovipositor (egg-tube) between the divisions of the calyx. As soon as the egg is hatched, the little grub gnaws a hole in the crown of the apple, and soon buries itself in its substance; and it is worthy of remark, that the rind of the apple, as if selected for the purpose, is thinner here than in any other part, and, consequently, more easily pierced. The apple most commonly attacked is the codlin. It will be evident, from the preceding details of the habits of this moth, that there are considerable difficulties in the way of its extirpation. It is impossible, for instance, to be aware of the presence of the enemy within the fruit until the mischief is actually completed; and, in like manner, the destruction of the moth, from its small size, and its habit of secreting itself in crevices of the bark, &c., is equally impracticable. The gathering up of the worm-eaten apples immediately after their fall, and before the enclosed caterpillar has had time to escape, cannot but be attended with good effect: care, however, must be taken to destroy the larvæ, which would otherwise very speedily make their escape. The cocoons, also, may be destroyed in the chinks of the bark during the autumn and winter. — (*The Cottage Gardener*, ii. 63.)

CARPODE'TES. (From *karpos*, a fruit, and *detos*, tied; the fruit, or capsule, is as much constricted as if tied in the middle. Nat. ord., *Amaryllids* [*Amaryllidaceæ*]. Linn., 6-*Hexandria* 1-*Monogynia*. Allied to *Eucrosia* and *Liperiza*.)

C. recurvata (bent-back), a purplish, long-necked bulb, with purplish-yellow flowers, from Peru, where it is called by the natives Chichuanhuaita, constitutes this genus. It requires the same treatment as *Coburgia*.

CARPOD'NTOS. (From *karpos*, fruit, and *odontos*, toothed; in reference to the toothed ends of the fruit-cells. Nat. ord., *Tutsans* [*Hypericaceæ*]. Linn., 13-*Polyandria* 6-*Pentagynia*.)

Greenhouse shrub. Cuttings of small side-shoots in sand, under a bell-glass, in April; peat and loam. Summer temp., 55° to 70°; winter, 40° to 45°.

C. lucida (shining). 20. White. N. Holland. 1820.

CARPOD'SOUS. Sweet Pishamin. (From

karpos, a fruit, and *discos*, a circle; in reference to the form of the fruit. Nat. ord., *Dogbanes* [Apocynaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Carissa*.)

Stove shrub. Cuttings of half-ripened shoots, in heat; loam and peat. Summer temp., 60° to 83°; winter, 50° to 55°.

C. du'rcis (sweet). 8. Green. June. Sierra Leone. 1822.

CARPOLY'SA. (From *karpos*, a fruit, and *lyssa*, rage; in reference to the three-celled fruit, or seed-pod, opening like the mouth of an enraged animal. Nat. ord., *Amaryllids* [Amaryllidaceæ]. Linn., 6-*Hexandria* 1-*Monogynia*. Allied to *Gethyllis* and *Lapiedra*.)

C. spiralis (pink). Cape of Good Hope. 1791.

A very neat little bulb, with spiral leaves, and starry, pinkish flowers, having green tops, requiring the same treatment as *Ixia*.

CARROT. *Daucus carota*.

Varieties.—Those with a long tapering root are named Long Carrots; and those having one that is nearly regularly cylindrical, abruptly terminating, are denominated Horn Carrots. The first are employed for the main crops; the second, on account of their superior delicate flavour, are advantageously grown for early use, and for shallow soils.

Horn Carrots.—Early Red. Common Early. Dutch, for forcing. Long. This last is the best for the summer crop.

Long Carrots.—White Belgium, Yellow, Long Yellow, Purple, Long Red, Chertsey, and Surrey. Superb Green-topped, or Altringham. The last two are the best for main crops.

Soil and Situation.—Carrots require a warm, light, rich soil, dug full two spades deep. With the bottom-spit it is a good practice to turn in a little well-decayed manure; but no general application of it to the surface should be allowed in the year they are sown; but a spot should be allotted them which has been made rich for the growth of crops in the previous year, or else purposely prepared by manuring and trenching in the preceding autumn. The fresh application of manure is liable to cause their growing forked, and to expend themselves in fibres, as well as to be worm-eaten. If the soil is at all binding, it should be well pulverized by digging very small spits at a time. Pigeons' dung is a good manure for the carrot.

Time and Mode of Sowing.—The first sowing for the production of plants to

draw whilst young should take place in a moderate hotbed, during January, and in a warm border at the conclusion of February, or early in March. At the close of the last month, or, preferably, in the first half of April, the main crop must be inserted; though, to avoid the maggot, it is even recommended not to do so until its close. In May and July the sowing may be repeated for production in autumn, and lastly in August, to stand through the winter, and produce in early spring. For sowing, a calm day should be selected; and the seeds should be separated by rubbing them between the hands, with the admixture of a little sand or dry coal-ashes, otherwise they cannot be sown regularly. Sow thinly, in drills eight inches apart for the horn, and ten or twelve inches for the long; and the beds not more than four feet wide, for the convenience of after-cultivation. The larger weeds must be continually removed by hand; and when the plants are seven or eight weeks old, or when they have got four leaves two or three inches long, they should be thinned, those intended for drawing young, to four or five inches apart, and those to attain their full growth to ten. At the same time, the ground must be small-hoed, which operation should be regularly performed every three or four weeks, until the growth of the plants becomes an effectual hindrance to the growth of the weeds. The crop to stand through the winter should, in frosty weather, be sheltered with a covering of litter, as, if it occurs with much severity, it often destroys them. The hotbed for the first sowing of the year must be moderate, and earthed about sixteen inches deep: two or three linings of hot dung, as the heat decreases, will be sufficient to bring them to a state fit for use. These are the first in production, but are closely followed by those that have withstood the winter. The temperature must never exceed 73°, nor fall lower than 55°. They need not be thinned to more than three inches apart. At the close of October, or early in November, as soon as the leaves change colour, the main crop may be dug up, and laid in alternate layers with sand, in a dry outhouse, previously to doing which the tops and any adhering earth must be removed. A dry day should always be chosen for taking them up.

To obtain Seed.—Leave some where raised; but, if this is impracticable, some of the finest roots should be selected, and their tops not cut so close as those for storing. These, likewise, must be placed in sand until February or March, then to be planted out two feet asunder in a stiff, loamy soil. Those left where grown, or those planted at the close of autumn, must, during frosts, have the protection of litter—to be removed, however, during mild weather. As the seed ripens in August, which is known by its turning brown, each umbel should be cut, otherwise much of the seed is often lost during stormy weather. It must be thoroughly dried, by exposure to the sun and air, before it is rubbed out for storing. For sowing, the seed should always be of the previous year's growth; if it is more than two years old it will not vegetate at all.

Insects.—The carrot is liable to the attacks of the wire-worm (see ELATER), as well as of those next mentioned.

CARROT MAGGOT. (*Psila rosæ*.) The parent fly is dark, with a metallic-green lustre, and rather hairy; head, reddish-yellow; legs, yellow; wings, very transparent. Very much resembles the *Anthomyia*. The grub, or maggot, is cylindrical and yellow; it eats holes in the main root of the carrot. This underground enemy of the carrot is said to be banished by mixing spirits of tar with sand until saturated, and applying it to the soil previously to digging, at the rate of about one gallon to sixty square yards; but we find trenching and manuring, as we have directed, a sufficient protective.

CARROT MOTH. See TINEA.

CARTHAMUS. (From *quartom*, to paint, in the Arabic; referring to the flowers yielding a fine colour. Nat. ord., a section of *Compositæ* [Asteracæ]. Linn., 19-Syngenesia 1-Æqualis.)

Hardy annuals. Seeds sown in April where they are to grow, or in a slight hotbed, in March, and then planted out; common soil.

C. oxyacantha (sharp-spined). 2. Yellow. July. Caucasus. 1819.
—*tinctorius* (dyer's). 3. Orange. June. Egypt. 1551.

CARTONE'MA. (From *kartos*, shorn, and *nema*, a filament; referring to the formation of the filaments, or threads, which support the pollen-bags. Nat. ord., Spiderworts [Commelynacæ]. Linn., 6-Hexandria 1-Monogynia.)

Greenhouse herbaceous perennial. Seeds sown in slight hotbed; light loam and sandy peat; requires the protection of a greenhouse, or a warm situation.

C. spicata (spiked). 1. Blue. July. N. Holland. 1822.

CARUM. Caraway. (From *Caria*, in Asia Minor, where it was first discovered. Nat. ord., *Umbellifers* [Apiacæ]. Linn., 5-Pentandria 2-Digynia. Allied to the weed Ammi.)

The seed of *C. carui* is our Caraway, esteemed for its aromatic qualities. Hardy biennials. Seeds; open ground, in March or April. Common soil.

C. carui (common). 2. White. May. Britain.
—*verticillatum* (whorl-leaved). 1. White. July. Britain. This species is removed here from *Sison*, a genus of weeds.

CARYA. Hickory. (The Greek name for the Walnut, so named on account of *Carya*, daughter of Dion, King of Laconia, said to have been changed by Bacchus into a Walnut-tree. Nat. ord., *Juglans* [Juglandacæ]. Linn., 21-Monœcia 9-Polyandria.)

This is the Hickory so celebrated in North America for the purposes of the cabinet-maker. Their best chairs they call their *Hickories*. Hardy deciduous trees. Seeds; the nut should be sown where the tree is intended to stand; layers, and grafting on the Walnut. Good, common soil.

C. alba (white. Shell-bark Hickory). 30. April. 1629.
—*amara* (bitter-nut). 30. May. 1800.
—*compressa* (compressed-fruited). 30. April. 1730.
—*laciniata* (jagged). 30. April.
—*microcarpa* (small-fruited). 30. April.
—*obcordata* (reversed-heart-shaped). 30. May. 1812.
—*oliveiformis* (olive-shaped). 30. April.
—*porcina* (hog-nut). 30. May. 1799.
— *glabra* (smooth). May.
—*sulcata* (furrowed). 30. April. 1804.
—*tomentosa* (woolly). 30. April.
— *maxima* (greatest fruited). 60. May.

CARYOCAR. Butter Nut. (From *karyon*, a nut; in reference to its fruit. Nat. ord., *Rhizobols* [Rhizobolacæ]. Linn., 13-Polyandria 4-Tetragynia.)

Two genera of immensely large trees, bearing large flowers and edible nuts, constitute the whole of this small order. The Suwarow (Sauari) nuts of the shops are the produce of the *C. nuciferum*. Oil not inferior to olive-oil is extracted from the kernels. Cuttings in sand, in heat, under glass. Loam and peat. Summer temp., 60° to 80°; winter, 50° to 55°.

C. glabrum (smooth). 100. Green. Guiana. 1820.
—*nuciferum* (nut-bearing). 100. Red, yellow. Guiana. 1820.
—*tomentosum* (woolly). 100. White. Guiana. 1820.

CARYOPHYLLUS. Clove-tree. (From

karyon, a nut, and *ophyllon*, a leaf; in reference to the appearance of the flower-buds, or Cloves of commerce. Nat. ord., *Myrtleblooms* [Myrtaceæ]. Linn., 12-*Icosandria* 1-*Monogynia*.)

The powerful scent of Cloves, or flower-buds of *C. aroma'ticus*, arises from a volatile oil contained in the pellucid dots in the leaves and other parts of the bark. Dotted leaves are one of the peculiar characteristics of this, the most natural order of plants. The flower-buds of *Calyptranthes* are as good a spice as those of the Clove-tree. Stove-tree. Cuttings of firm shoots, with leaves on, in heat, under glass. Summer temp., 60° to 86°; winter 55° to 60°.

C. aroma'ticus (aromatic). 20. Yellowish-white. Moluccas. 1797.

CARYO'TA. (From *karyon*, a nut. The Greeks first applied this name to their cultivated Date. Nat. ord., *Palms* [Pal-maceæ]. Linn., 21-*Monæcia* 9-*Polyan-dria*.)

A noble member of a noble family of plants, most valuable to the natives of the countries they inhabit, *C. u'rens* furnishing a highly nutritious sago, besides abundance of palm-wine, or toddy. Stove trees. Seeds; rich, sandy loam and peat. Summer temp., 60° to 85°; winter, 50° to 55°.

C. ho'rrida (horrid). 20. S. Amer. 1823.

— *mi'tis* (mild). White. China. 1820.

— *u'rens* (stinging). 20. White. E. Ind. 1788.

CASCADE, or WATERFALL, is agreeable only when properly associated with the scenery around. That association is a bold, broken ground, and a dense plantation of trees. Nothing is more misplaced or tasteless than a sheet of water falling into another uniform collection of water, in an open, unwooded plain. Mr. Whately justly observes, that a rill cannot pretend to any sound beyond that of a little waterfall. The roar of a cascade belongs only to larger streams; but it may be introduced by a rivulet to a considerable degree, and attempts to do more have generally been unsuccessful: a vain ambition to imitate nature in her great extravagances betrays the weakness of art. Though a noble river throwing itself headlong down a precipice be an object truly magnificent, it must be confessed, that in a single sheet of water there is a formality which its vastness alone can cure; but the height, not the breadth, is the wonder. When it falls no more than a few feet the regularity prevails; and its effect only serves to expose the vanity of affecting the style of a cataract in an artificial cascade. It is less exceptionable if divided into several parts, for then each separate part may be wide enough for its depth; and, in the

whole, variety, and not greatness, will be the predominant character. But a structure of rough, large, detached stones cannot easily be contrived of strength sufficient to support a great weight of water. It is sometimes, from necessity, almost smooth and uniform; and then it loses much of its effect. Several little falls in succession are preferable to one greater cascade, which, in figure or in motion, approaches to regularity.

When greatness is thus reduced to number, and length becomes of more importance than breadth, a rivulet vies with a river; and it more frequently runs in a continued declivity, which is very favourable to such a succession of falls. Half the expense and labour which are sometimes bestowed on a river to give it, at the best, a forced precipitancy in any one spot only, would animate a rivulet through the whole of its course; and, after all, the most interesting circumstance in falling waters is their animation. A great cascade fills us with surprise; but all surprise must cease; and the motion, the agitation, the rage, the froth, and the variety of the water are finally the objects which engage the attention. For these a rivulet is sufficient; and they may there be produced without that appearance of effort which raises a suspicion of art. To obviate such a suspicion, it may sometimes be expedient to begin the descent out of sight; for the beginning is the difficulty. If that be concealed, the subsequent falls seem but a consequence of the agitation which characterises the water at its first appearance; and the imagination is, at the same time, let loose to give ideal extent to the cascades.

CASEA'RIA. (Named after *J. Casearius*, the coadjutor of Rheede in producing the *Hortus Malabaricus*. Nat. ord., *Samyds* [Samydaceæ]. Linn., 10-*Decandria* 1-*Monogynia*.)

Stove evergreen trees, chiefly valued for their astringent and medicinal qualities. Cuttings in sand, under a glass, in heat. Light, sandy, fibry loam. Summer temp., 60° to 80°; winter, 50° to 60°.

C. hirsu'ta (hairy). 8. Yellow, green. Jamaica. 1825.

— *parvifo'ra* (small-flowered). 6. Yellowish-green. S. Amer. 1818.

— *parvifo'lia* (small-leaved). 6. Yellowish-green. Martinique. 1827.

— *ramifo'ra* (branch-flowered). 4. Yellowish-green. Guiana. 1824.

— *serru'la'ta* (saw-edged). 6. Whitish-green. Jamaica. 1818.

C. sylvestris (wood). 8. Whitish-green. Jamaica. 1823.

CA'SHEW NUT. *Anacardium occidentale* L.

CASSA'VA. *Jani'pha ma'nihot*.

CASSEBEE'RA. (Nat. ord., Ferns [Polypodiaceæ]. Linn., 24-Cryptogamia 1-Filices. Allied to *Platyloma*.)

Divisions; peat and loam; hardy greenhouse and stove treatment, according to their native locality.

C. argentea (silvery). 4. Brown. July. Siberia. 1816. Hardy.

— *auriculata* (eared). Brown. July. Stove.

— *cuneata* (wedge-shaped-leaved). Brown. July. 1831. Stove.

— *farinosa* (mealy). 1½. Brown. May. Isle of Luzon. 1840. Stove.

— *hastata* (halbert-leaved). 2. Brown. August. Cape of Good Hope. 1823. Greenhouse.

— *intramarginalis* (bordered-beneath). Brown. September. Mexico. 1828. Greenhouse.

— *pedata* (twice-lobed). 4. Brown. Virginia. 1820. Hardy.

— *pinnata* (leafleted). Brown. June. Stove.

— *pteroides* (fern-like). Brown. July. Cape of Good Hope. 1775. Greenhouse.

— *triphylla* (three-leaved). Brown. July. 1824. Stove.

— *vespertilionis* (bat-winged). 3. Brown. August. N. Holland. 1823. Greenhouse.

CA'SSIA. (From the Greek name of a plant, *kasian* of the Bible. Nat. ord., Leguminous Plants [Fabaceæ]. Linn., 10-Decandria 1-Monogynia.)

C. lanceolata produces the true Alexandrian senna-leaves; and a variety of this species yields the Indian senna. The plant, however, is a native of Arabia, and from it is obtained the senna of Mecca. *C. obovata* furnishes the Aleppo senna; and in America they use the leaves of *C. Marilandica* as a purgative. Allied to *Cassalpinia*. Annuals and biennials by seed, sown in March or April, in heat; the biennials by cuttings, in April, of half-ripened shoots, in heat. A few will thrive in the greenhouse; but most of them require stove treatment in winter; that is, a temperature of from 50° to 60°; and where there is much room they deserve it.

ANNUALS.

C. æschynomene (æschynome). 1. Yellow. June. W. Ind. 1810. Stove.

— *angustissima* (narrowest-leaved). 1. Yellow. July. E. Ind. 1820. Stove.

— *caspera* (rough). 1. Yellow. July. Georgia. 1818. Stove.

— *Burmanni* (Burmans'). 1. Yellow. June. Cape of Good Hope. 1810. Half-hardy.

— *flesuosa* (zigzag-stemmed). 1. Yellow. July. Brazil. 1810. Stove.

— *floribunda* (bundle-flowered). 4. Yellow. June. New Spain. 1818. Stove.

— *florida* (large-flowered). 6. Yellow. June. E. Ind. 1820. Stove.

— *glandulosa* (glanded). 5. Yellow. September. W. Ind. 1822. Stove.

— *hispida* (bristly). Yellow. June. Cayenne. 1826. Stove.

— *humilis* (humble). 1. Yellow. June. S. Amer. 1800. Stove biennial.

— *Ita'lica* (Italian senna). 3. Yellow. June. South of Europe. Stove.

C. mimosoides (mimosa-like). 2. Yellow. July. Ceylon. 1806. Stove.

— *niticans* (twinkling). 2. Yellow. July. N. Amer. 1800. Hardy.

— *obovata* (reversed-egg). 2. Yellow. July. Egypt. 1640. Stove.

— *obtusifolia* (twisted-leaved). Yellow. July. Jamaica. 1732. Stove.

— *procumbens* (lying-down). Yellow. June. N. Amer. 1806. Hardy.

— *pu'nila* (dwarf). 1. Yellow. June. E. Ind. 1814. Stove trailer.

— *Ta'gera* (Tagera). Yellow. July. E. Ind. 1803. Stove biennial.

— *Thonni'ngii* (Thonning's). Yellow. June. Guinea. 1824. Stove.

— *triflora* (three-flowered). 1. Yellow. June. W. Ind. 1816. Stove.

— *Wallichiana* (Wallich's). 1. Yellow. June. Nepal. 1817. Stove.

GREENHOUSE EVERGREENS.

C. Ægyptiaca (Egyptian). 3. Yellow. May. Egypt. 1822.

— *artemisioides* (wormwood-like). 2. Yellow. June. N. Holland. 1820.

— *Barclayana* (Barclay's). 4. Yellow. July. N. Holland. 1827.

— *Berteri* (Berter's). 10. Yellow. June. W. Ind. 1827.

— *bicapsularis* (two-capsuled). 4. Yellow. May. W. Ind. 1739.

— *biflora* (two-flowered). 6. Yellow. August. W. Ind. 1766.

— *bracteata* (bracteated). 6. Yellow. August. W. Ind. 1822.

— *brevifolia* (short-leaved). Yellow. June. Madagascar. 1824.

— *Cape'nsis* (Cape). 1. Yellow. June. Cape of Good Hope. 1816.

— *Chine'nsis* (Chinese). 4. Yellow. June. China. 1807.

— *Flinder'sii* (Flinder's). Yellow. June. N. S. Wales. 1818.

— *frondosa* (leafy). 3. Yellow. April. W. Ind. 1796.

— *glutinosus* (clammy). 3. Yellow. June. N. Holland. 1818.

— *linearis* (narrow-podded). 3. Yellow. June. Carolina. 1800.

— *Marilandica* (Maryland). 3. Yellow. September. N. Amer. 1823. Hardy herbaceous perennial.

— *nit'gicans* (blackish). 1. Yellow. June. Egypt. 1817.

— *ruscifolia* (ruscus-leaved). 2. Yellow. June. Madeira. 1816.

STOVE EVERGREENS.

C. Acapulcensis (Acapulco). 4. Yellow. June. Acapulco. 1823.

— *ala'ta* (winged-leaved). 12. Yellow. W. Ind. 1731.

— *Apoucou'ita* (Apoucouita). 8. Yellow. Surinam. 1820.

— *arbore'scens* (tree-like). Yellow. May. North Spain. 1818.

— *atoma'ria* (dotted). 4. Yellow. June. N. Amer. 1810.

— *auriculata* (small-eared). 4. Yellow. E. Ind. 1777.

— *bacillaris* (rod). 3. Yellow. E. Ind. 1782.

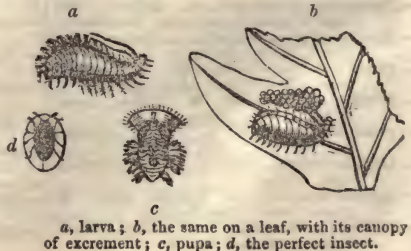
— *chamaecristata* (ground-senna). 1. Yellow. July. America. 1699.

— *chrysotricha* (golden-haired). Yellow. June. Guiana. 1828.

- C. ciliat'ris* (hair-fringed-stipuled). 1. Yellow. June. E. Ind. 1817. Herbaceous perennial.
- *ciliat'a* (hair-fringed-leafleted). 1. Yellow. June. Cuba. 1820.
- *Coromandelu'na* (Coromandel). 8. Yellow. June. Coromandel. 1823.
- *corymbo'sa* (corymbose). 3. Yellow. July. Buenos Ayres. 1796.
- *cuspidat'a* (spine-pointed-leaved). 4. Yellow. July. S. Amer. 1820.
- *diphy'lla* (two-leaved). 2. Yellow. June. W. Ind. 1781.
- *dispar* (unequal). 3. Yellow. S. Amer. 1824.
- *elliptica* (oval-leaved). 5. Yellow. June. Trinidad. 1818.
- *emarginat'a* (notch-leaved). 15. Yellow. May. Jamaica. 1759.
- *fastigiat'a* (peaked). 4. Yellow. June. E. Ind. 1818.
- *gigantea* (gigantic). Yellow. June. Jamaica. 1825.
- *glau'ca* (milky-green). 4. Yellow. June. E. Ind. 1818.
- *gracilis* (slender). 2. Yellow. June. Orinoco. 1817.
- *Herbertia'na* (Herbert's). 9. Yellow. November. Barbadoes. 1828.
- *hirt'a* (hairy). 3. Yellow. August. N. Amer. 1820.
- *hirsut'a* (coarse-haired). 4. Yellow. July. America. 1778.
- *Houstonia'na* (Houston's). Yellow. July. Jamaica. 1817.
- *lavinat'a* (smooth). 3. Yellow. July. Levant.
- *lanceolat'a* (spear-leaved). 1. Yellow. July. Levant.
- *lined'a* (lined-leaved). 1. Yellow. June. Jamaica. 1818.
- *longisiliqua* (long-podded). 6. Yellow. June. W. Ind. 1800.
- *lotodes* (lotus-like). 2. Yellow. June. Trinidad. 1820.
- *macranthera* (large-anthered). 3. Yellow. June. Brazil. 1824.
- *marginat'a* (bordered). 3. Yellow. June. Surinam. 1823.
- *Mexica'na* (Mexican). 5. Yellow. June. Mexico. 1824.
- *melanocarpa* (black-podded). Yellow. June. Jamaica. 1825.
- *mollissima* (softest-leaved). 6. Yellow. S. Amer. 1820.
- *montana* (mountain). Yellow. May. E. Ind. 1822.
- *occidentalis* (western). 3. Yellow. June. W. Ind. 1759.
- *Parkeria'na* (Parker's). 2. Yellow. August. Demerara. 1817.
- *patula* (spreading). 2. Yellow. August. W. Ind. 1778.
- *pendula* (pendulous). 3. Yellow. July. S. Amer. 1820.
- *pentagona* (five-angled). 1. Yellow. June. Peru. 1706. Herbaceous perennial.
- *pilos'a* (soft-haired). 1. Yellow. June. Jamaica. 1818. Herbaceous perennial.
- *planisiliqua* (flat-podded). 4. Yellow. June. W. Ind. 1822.
- *polyphy'lla* (many-leafleted). 4. Yellow. June. W. Ind. 1816.
- *pubescens* (downy). 2. Yellow. June. S. Amer. 1812.

- C. pulchella* (pretty). 3. Yellow. July. Mauritius. 1825.
- *purpurea* (purple-stemmed). 4. Yellow. July. E. Ind. 1821.
- *quingungularis* (five-angled-branched). 3. Yellow. June. Cayenne. 1818.
- *reticulat'a* (netted). 10. Yellow. August. S. Amer. 1821.
- *Richardia'na* (Richard's). 2. Yellow. July. Cumana. 1823.
- *Robinioides* (Robinia-like). 10. Yellow. July. S. Amer. 1823.
- *sennoides* (senna-like). 3. Yellow. July. E. Ind. 1808.
- *sericea* (silky). Yellow. May. S. Amer. 1731.
- *sophora* (sophora). 4. Yellow. July. E. Ind. 1658.
- *speciosa* (showy). 5. Yellow. June. Brazil. 1816.
- *spectabilis* (showy). 4. Yellow. June. Caraccas. 1820.
- *stipulacea* (large-stipuled). 3. Yellow. Chili. 1781.
- *sulcata* (furrowed-branched). 3. Yellow. June. S. Amer. 1820.
- *Sumatra'na* (Sumatra). Yellow. June. Sumatra. 1823.
- *Tarant'nan* (Tarantan). 2. Yellow. July. Cumana. 1817.
- *tene'lla* (weak). 2. Yellow. July. Orinoco. 1820.
- *tomentosa* (thick-downed). 15. Yellow. July. S. Amer. 1822.
- *uniflora* (one-flowered). Red. June. Brazil. 1824.
- *venustula* (rather pretty). Yellow. July. Cumana. 1825.
- *viminea* (twiggy). 3. Yellow. W. Ind. 1786.
- *virgata* (rod-branched). 1. Yellow. June. W. Ind. 1810.

CASSIDA VIRIDIS. Artichoke Tortoise-beetle. The common artichoke's leaves suffer during the summer, sometimes, though rarely, from the attacks of the larva of a very curious small beetle, which may be called the Artichoke Tortoise-beetle, *Cassida viridis*. The beetle, which is found in May and June, is not more than one-sixteenth of an inch long; the antennæ are black; the dotted wing-cases and other outer coverings green; but the body beneath them black; and the legs pale, with black thighs. It is found upon the water-mints, as well as upon thistles and artichokes. The larva has a very flat body, with spines upon its edges; and it has the singular habit of



a, larva; b, the same on a leaf, with its canopy of excrement; c, pupa; d, the perfect insect.

covering itself with its own excrement, which it attaches together in a mass, and carries on a kind of fork attached to its tail. The pupa is also very flat, having thin toothed appendages at the sides of the body, with a broad thorax, prolonged forward into a rounded expansion, which covers the head.—*The Cottage Gardener*, iii. 317.

CASSI'NE. (A name given by the North American Indians to a plant now referred to the Holly—*Ilex Vomitoria*. Nat. ord., *Hollyworts* [Aquifoliaceæ]. Linn., 5-*Pentandria* 3-*Trigynia*.)

Greenhouse evergreen shrubs; cuttings of half-ripened shoots in sand, under a glass; loam and peat. Summer temp., 69° to 70°; winter, 40° to 45°.

- C. Æthiopica* (Ethiopian). 5. White. July. Cape of Good Hope.
- *barbarea* (barbarous). 6. White. July. Cape of Good Hope. 1818.
- *Cape'nsis* (Cape Phillyrea). 6. White. July. Cape of Good Hope. 1629.
- *colpo'on* (oolpoon-tree). 6. White. August. Cape of Good Hope. 1791.
- *exce'lsa* (tall). 18. White. June. Nepaul. 1820.
- *Mauroce'nia* (Morosini's. *Hottentot cherry*). 5. White. August. Cape of Good Hope. 1690.
- *oppositifo'lia* (opposite-leaved). 5. White.

CASSI'NIA. Named after *Cassini*, a French botanist. Nat. ord., *Composites* [Asteraceæ]. Linn., 19-*Syngenesia* 5-*Segregata*. Allied to *Amobium*.)

The annual by seed, in March; the others by dividing at the roots, and cuttings of half-ripened shoots, in sand, in April; loam and peat. Summer temp., 55° to 70°; winter, 45° to 50°.

- C. aff'nis* (allied). 2. May. N. Holland. 1820. Greenhouse evergreen.
- *au'rea* (golden). 1. Yellow. July. N. Holland. 1803. Greenhouse herbaceous perennial.
- *denticula'ta* (small-toothed). Pale yellow. Australia. 1826. Greenhouse evergreen.
- *leptophy'lia* (slender-leaved). 2. White. August. New Zealand. 1821. Greenhouse evergreen.
- *longifo'lia* (long-leaved). 2. May. N. Holland. 1822. Greenhouse evergreen.
- *specio'sa* (showy). N. S. Wales. Greenhouse herbaceous perennial.
- *specta'bilis* (showy annual). 6. Yellow. July. N. Holland. 1818. Hardy annual.

CASTA'NEA. Chestnut. (From a town of that name in Thessaly. Nat. ord., *Mastworts* [Corylaceæ]. Linn., 21-*Monœcia* 9-*Polyandria*.)

Hardy deciduous trees, except *C. Indica*; seeds gathered in autumn, preserved in dry sand, and sown in March; deep, sandy loam; varieties by grafting.

- C. America'na* (American). 50. Green. May. America.
- *Chine'nsis* (China). 50. Green. May. China.
- *chrysophy'lia* (golden-leaved). Mexico. 1848.

- C. Indica* (Indian). 40. E. Ind. 1827. Stove evergreen.
- *pu'mila* (dwarf). 12. Green, yellow. July. N. Amer. 1699.
- *ve'sca* (Spanish edible). 50. Green. June. England.
- — *asplenifo'lia* (asplenium-leaved). 50. Green. May. Europe.
- — *cochlea'ta* (spiral). Green. May.
- — *coralli'na-variega'ta* (coral-variegated). Green. May. 1846.
- — *cuculla'ta* (hooded). Green. May. 1846.
- — *fo'tis-au'reis* (golden-leaved). 50. Green. June.
- — *glab'ra* (smooth-leaved). Green. May.
- — *glau'ca* (milky-green). Green. June.
- — *lu'cida* (shining-leaved). Green. May. 1846.
- — *me'dia* (intermediate). 50. Green. June. Europe.
- — *Prin'cei* (Prince's). Green. May. 1846.
- — *pu'mila* (dwarf). Green. May. 1846.
- — *variega'ta* (variegated-leaved). Green. May.

CHESTNUT (SPANISH, or SWEET). This, the *Castanea vesca* of the above genus, in the southern parts of England is cultivated for its fruit, as well as for the value of its timber, which is in good esteem. There are several varieties in cultivation in this country, and, of course, many in France and Italy. About twenty foreign varieties may be found in the catalogue of the Horticultural Society; but the Downton, and the Prolific, or Devonshire, are, at present, most esteemed, probably as being somewhat hardier, and therefore well adapted to our climate, which is not capable of producing the fruit in that high degree of perfection of which it is susceptible in the warm and bright climates of Spain, Portugal, and France. The Châtaigne Exalade has been suggested as particularly eligible for the dwarfing-system in a small garden.

Propagation.—The better sorts are propagated by grafting on the ordinary chestnut of our nurseries, which is raised from seed.

Soil and Culture.—Any free upland soil is adapted to its culture, provided it is dry beneath, and not too adhesive. For the dwarfing-system we recommend the platform mode, allowing only half a yard in depth of soil. Little if any pruning is necessary, the fruit being all produced in clusters on the extremities of the shoots. No other culture is necessary; but a warm situation is of much importance.

Fruit-seeds, how to keep.—It is almost needless to observe that chestnuts are generally eaten roasted, mostly with a little salt. They are also stewed in

cream, and eaten with salt fish. In keeping them dryness is necessary; but it must be accompanied with as low a temperature as possible. They should be taken out of their exterior or rough coating as soon as ripe; and it is well to subject them to an artificial heat of about sixty to seventy degrees in a warm room for a couple of days afterwards. They may then be packed away in dry sand, or dust, and placed in a very cold but dry room or cellar, where they will keep for months. They are very excitable as to sprouting; a very little moisture, with warmth, will bring on germination.

CASTANOSPERMUM. Morton Bay Chestnut. (From *castanea*, the chestnut, and *sperma*, a seed. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 10-*Decandria* 1-*Monogynia*. Allied to *Sophora*.)

Greenhouse evergreen; seeds when procurable; layers and cuttings; deep, loamy soil; greenhouse or conservative wall.

C. australe (southern). 40. Saffron. N. Holland. 1828.

CASTE'LEA. (After an author named *Castel*. Nat. ord., *Ochnads* [Ochnaceæ]. Linn., 8-*Octandria* 1-*Monogynia*. Allied to *Elvasia*.)

The Goatbush, *C. Nicholsoni*, is as bitter as *Quassia*. Stove evergreen shrubs. Cuttings of rather firm shoots in sand, under a bell-glass, and in bottom-heat; peat and loam. Summer temp., 60° to 85°; winter, 50° to 55°.

C. erecta (upright). 4. W. Ind. 1821.
— *Nicholsoni* (Nicholson's). 4. Copper. Antigua. 1830.

CASTILLE'JA. (Named after a Spanish botanist of that name. Nat. ord., *Fig-worts* [Schrophulariaceæ]. Linn., 14-*Didynamia* 2-*Angiospermia*. Allied to *Euphrasia*.)

The stove species by cuttings of half-ripe shoots in sand, in bottom-heat, under a glass; loam and peat. Summer temp., 60° to 80°; winter, 50° to 55°. Hardy species, seeds and divisions of the roots; peaty, sandy soil.

- C. integrifolia* (whole-leaved). 1. S. Amer. 1825. Stove evergreen.
- *lithospermoides* (gromwell-like). Scarlet. August. Mexico. 1848. Greenhouse.
- *Moranensis* (Moran). Mexico. 1825. Prostrate stove evergreen.
- *pallida* (pale). 1. Light purple. July. Siberia. 1782. Hardy herbaceous perennial.
- *septentrionalis* (northern). 2. White, green. August. Labrador. 1824. Hardy annual.
- *serrata* (saw-edged). 1. Blue. June. 1829. Stove evergreen.

CASUARY'NA. Beefwood. (Supposed to be derived from the resemblance of the long, weeping, leafless branches to

the drooping feathers of the *Cassowary*. Nat. ord., *Beefwoods* [Casuarinaceæ]. Linn., 21-*Monæcia* 1-*Monandria*.)

This is the "Native Oak, or Beefwood" of the Australian colonists, and probably the most singularly picturesque tree of the Australian flora. Large trees, with weeping branches, the individual branches being jointed like a bamboo, and streaked between the joints, having no leaves. The timber is as good as our Oak, and of the colour of raw beef, whence the colonial name. Cattle are extremely fond of the young branches of the *She Oak* (*C. quadrivalvis*), and the colonists chew them to allay their thirst. From what we know in this country of *C. equisetifolia* we would rank the Beefwoods as the most remarkable in a winter conservatory. Greenhouse evergreen trees. Seeds, and cuttings of half-ripened shoots, in April, in sand, under a bell-glass; loam and peat, with a portion of sand, and lumps of charcoal. Summer temp., 55° to 70°; winter, 40° to 45°. They should be tried in sheltered places out of doors, especially in the south of England.

- C. distyla* (two-styled). 15. N. Holland. 1812.
- *equisetifolia* (equisetum-leaved). 15. September. South Sea Islands. 1776.
- *glauca* (milky-green). 15. N. Holland. 1824.
- *muricata* (point-covered). 15. E. Ind. 1822.
- *nodiflora* (knot-flowered). 15. New Caledonia. 1823.
- *quadrivalvis* (four-valved). 18. N. S. Wales. 1812.
- *stricta* (upright). 15. May. N. S. Wales. 1775.
- *tenuissima* (slenderest). 10. N. Holland. 1825.
- *torulosa* (twisted). 15. N. S. Wales. 1772.

CATA'LPA. (The Indian name. Nat. ord., *Bignoniads* [Bignoniaceæ]. Linn., 2-*Diandria* 1-*Monogynia*.)

The North American species by seeds sown in spring, root-cuttings, layers in autumn, and cuttings of the ripened shoots in autumn; deep, rich loam. The West Indian species by cuttings of the ripe shoots in heat, and under a glass; usual stove-treatment.

- C. longissima* (longest-podded). 20. White. W. Ind. 1777.
- *microphylla* (small-leaved). 15. White. Hispaniola. 1820.
- *syriacifolia* (syringa-leaved). 29. White. July. N. Amer. 1726.

CATANAN'CHE. (From *katanangke*, a strong incentive; in reference to an ancient custom among the Greek women of using it in love-potions. Nat. ord., *Composites* [Asteraceæ]. Linn., 19-*Syn-genesia* 1-*Equalis*.)

Division of the roots in March, and seed sown in April; common soil.

- C. cerulea* (sky-blue). 3. Blue. August. South Europe. 1596. Hardy herbaceous perennial.
- *bicolor* (two-coloured). 3. White, blue. August. Gardens. 1827.
- *lutea* (yellow). 1. Yellow. June. Candia. 1640. Hardy annual.

CATASE'TUM. (From *kata*, downward, and *seta*, a bristle; referring to the position of the two horns of the column.

Nat. ord., *Orchids* [*Orchidaceæ*]. Linn., 20-*Gynandria* 1-*Monandria*.)

Stove orchids. Divisions; peat, moss, broken pots, and charcoal, elevated above a pot, or in shallow, open baskets; cool and dry in winter; a high temperature and moist atmosphere when making their growth. Summer temp., 60° to 90°; winter, 50° to 55°.

C. abruptum (blunt-lipped). 1. Greenish-yellow. September. Brazil. 1841.

— *atra'tum* (dark-flowered). 1. Dark. July. Brazil.

— *barba'tum* (bearded). 2. Green, purple. May. Demerara. 1836.

— — *immacula'tum* (spotless). 2. Green, pink. September. Demerara. 1835.

— — *labe'llo-a'tha* (white-lipped). 2. Greenish-white. September. Demerara. 1835.

— — *proboscideum* (long-snouted). Brownish-green. May. Sertao. 1839.

— *callo'sum* (hardened). 1. Brownish-yellow. June. La Guayra. 1840.

— — *grandiflorum* (large-flowered). 1. Green, brown, purple. December. Columbia. 1845.

— *ce'rnum* (drooping). 1½. Pale green. Rio Janeiro. 1832.

— *citrinum* (citron-coloured). Pale yellow. August.

— *cornu'tum* (horned). Greenish-purple. March. Demerara. 1840.

— *crista'tum* (crested). 2. Green. August. Brazil. 1823.

— *deltoidum* (triangle-lipped). 1½. Green, brown. March. Demerara. 1842.

— *sinbria'tum* (fringe-lipped). Pink, red. August. Brazil. 1837. There are two kinds, *Haynderi* and *Legrelli*, slightly differing in colour.

— *fuliginosum* (sooty). Green, purple. August. Mexico. 1839.

— *globiflorum* (globe-flowered). 1. Olive, brown. June. Mexico. 1840.

— *Hookeri* (Hooker's). 2. Green, brown. October. Brazil. 1818.

— *integerrimum* (entire-lipped). Purple, brown. June. Guatemala. 1839.

— — *intermedia variegata*. Black, white, yellow. Brazil.

— *lamina'tum* (plaited). Brown, purple. April. Mexico. 1844.

— — *eburneum* (ivory-lipped). White, green. April. Mexico. 1839.

— *lanceiferum* (lance-bearing). Pure green. March. Brazil. 1839.

— *longifolium* (long-leaved). 2. Orange, violet. August. Demerara. 1837.

— *maculatum integerrimum* (spotted-entire-lipped). 3. Green-and-purple-spotted. September. Mexico.

— *Milleri* (Dr. Miller's). 2. Purple-spotted. September. Brazil. 1837.

— *na'so* (nose-like-lipped). White, purple. August. Mexico. 1843.

— *ochraceum* (reddish-yellow). Yellow. Brazil. 1844.

— *plai'niceps* (flat-headed). 1. Green and yellow. Spanish Main. 1840.

— *proboscideum* (long-snouted). Brightish-green. Demerara. 1839.

— *pu'rimum* (spotless). 1. Green. October. Brazil.

— *roseo-a'tum* (rose-and-white-flowered). 2. White, red. April. Para. 1836.

— *Russellianum* (Duke of Bedford's). 3. Green. July. Guatemala. 1838.

C. sacca'tum (pouched). Yellow, purple. March. Demerara. 1840.

— *semiaper'tum* (half-open). 1. Yellow. November. Brazil. 1826.

— *serra'tum* (saw-edged-lipped). Green, yellow. September. Panama. 1844.

— *spinosum* (spiny-lipped). 1. Green, brown. Brazil. 1840.

— *tabula're* (table-formed-lipped). Pale green. Guatemala. 1843.

— *tridentat'm* (three-toothed). 2. Yellow, brown. April. Trinidad. 1822. This sports into the six following, and even into *Waile'sii*.

— — *atropurpureum* (dark-purple-flowered). 2. Dark purple. August. Demerara.

— — *aurum* (golden-flowered). 2. Yellow. August. Demerara.

— *Claveringi* (Capt. Clavering's). 2. Yellow, brown. August. Brazil. 1822.

— — *floribundum* (bundle-flowered). 2. Yellow, brown. November. Trinidad. 1824.

— — *macrocarpum* (large-fruited). 2. Yellow, purple. August. Brazil.

— — *viridiflorum* (green-flowered). 2. Green. May. Demerara.

— *trifidum* (three-cleft-lipped). 2. Green. June. Trinidad.

— *trulla* (trowel-lipped). Green, brown. September. S. Amer. 1840.

— *viridiflorum* (greenish-yellow). 1. Yellow, green. June. S. Amer. 1841.

— *Waile'sii* (Waile's). 1. Green. September. Honduras. 1840.

CATCHFLY. *Sile'ne*.

CA'TECHU. *Aca'cia ca'techu*.

CATERPILLAR. *Scorpiu'rus*.

CATERPILLAR. This is the young of either the butterfly or the moth, in its first state after emerging from the egg. There are many kinds; and the best mode of preventing their invasions is to destroy every *butterfly*, *moth*, *chrysalis*, and *egg* that can be found. Hand-picking, dusting with lime or soot, and other modes of destroying the caterpillar are mentioned when noticing the plants they attack; but we may here observe that the powder of White Hellebore is by far the most effectual for dusting over this marauder. Sparrows and other small birds, in early spring, should not be scared from the garden, for they destroy myriads of caterpillars: at that season they can do no harm if the gardener properly guards his seed-beds. Boys paid a halfpenny per dozen for leaves having eggs or smaller caterpillars upon them, have been found to keep a garden free for a whole season for about seven shillings.

CATESBÆ'A. Lily Thorn. (Named after *M. Catesby*, author of a Natural History of Carolina. Nat. ord., *Cinchonads* [*Cinchonaceæ*]. Linn., 4-*Tetrandria* 1-*Monogynia*. Allied to *Gardenia*.)

Stove evergreens. Cuttings in sand, under a glass, in heat, in April. Sandy loam and fibry peat. Summer temp., 60° to 80°; winter, 55° to 60°.

C. latifolia (broad-leaved). 5. Yellow. June. W. ind. 1823.

— *Lindiana* (Linden's). 2. July.

— *parviflora* (small-flowered). 2. White. June. Jamaica. 1810.

— *spinosia* (thorned). 12. Yellow. June. Isle of Providence. 1726.

CATHA. We have united this genus to *Celastrus*.

CATHARTHUS. See VINC.

CATHARTICA. (In honour of J. F. Cathcart, Esq., B.O.S., Judge of Tirboot. Nat. ord., Poppyworts [Papaveraceæ]. Linn., 13-Polyandria 1-Monogynia.)

A greenhouse herbaceous plant, perhaps hardy, and certainly may be planted out in summer in a cool shade.

C. villosa (shaggy). 1. Yellow. June. Sikhim-Himalaya. 1850.

CAT-MINT. *Ne'peta*.

CAT-THYME. *Teu'crium ma'rum*.

CAT'TERIDGE-TREE. *Euo'nymus Euro'pæus*.

CAT'TLEYA. (Named after Mr. Cattley, a distinguished patron of botany. Nat. ord., Orchids [Orchidaceæ]. Linn., 20-Gynandria 1-Monandria.)

Stove orchids. Divisions. Moss, peat, and broken pots, either in shallow baskets, or raised above the surface of the pot. Summer temp., 60° to 90°; winter, 60°.

C. Acl'ndia (Lady Acland's). 4. Purple, brown. July. Brazil. 1839.

— *Arembergii* (Count Aremberg's). Lilac. July. Brazil. 1842.

— *bi'color* (two-coloured). 1. Olive-green. September. Brazil. 1837. There is a variety with a white-margined lip.

— *bulbo'sa* (bulbed). 4. Rose, purple. April. Brazil. 1846.

— *ca'ndida* (white-flowered). White, pink. Brazil. 1838.

— *citri'na* (citron-flowered). Citron. April. Mexico. 1833.

— *cri'spa* (curled-flowered). 1. White, purple. September. Brazil. 1826.

— *viola'cea* (violet-coloured). Deep violet and white. Guiana. 1850.

— *Dominge'nsis* (St. Domingo). April. St. Domingo. 1844.

— *ela'tior* (taller). 1. Green-spotted. Brazil. 1827.

— *e'legans* (elegant). Purple and white. Brazil. 1852.

— *Forbe'sii* (Forbes's). 3. White, yellow. June. Brazil. 1823.

— *granulo'sa* (granulated-lipped). 1. Whitish-green. May. Guatemala. 1841.

— *Russellia'na* (Duke of Bedford's). 1. Green, white, orange. May. Mexico. 1839.

— *gutt'a* (spotted-flowered). 1. Green, red. April. Brazil. 1827.

— *ela'tior* (taller). April. Brazil. 1827.

— *Russellia'na* (Lord C. Russell's). Green, red. August. Brazil. 1838.

C. Harrisonia (Mrs. Harrison's). 1. Rose, yellow. April. Brazil. There is a variety of a violet-colour.

— *intermedia* (intermediate-sized). 1. Rose, white. April. Brazil. 1824.

— *angustifolia* (narrow-leaved). 1. Light purple. September. Brazil. 1836.

— *pa'llida* (pale-red-flowered). 1. Light red. June. Brazil, 1833.

— *purpurea* (purple-blotched).

— *variega'ta* (variegated-lipped). 1. White, red. May. Brazil. 1843.

— *labia'ta* (ruby-lipped). 1. Crimson, lilac. May. Brazil. 1818. It appears as if this species is identical with *C. Mossia*.

— *alba* (white).

— *atro-purpurea* (dark purple). Lilac, purple. November. La Guayra. 1839.

— *atro-sanguinea* (dark crimson). 1. Dark red. July. S. Amer.

— *picta* (painted).

— *Lemonia'na* (Sir C. Lemon's). 3. Rose, yellow. August. Brazil. 1842.

— *loba'ta* (lobed petaled and lipped). Purple, violet, and crimson veins. Brazil. 1847.

— *Loddige'sii* (Loddige's). 1. Rose, lilac. August. Brazil. 1815.

— *margin'a'ta* (bordered). 4. Pink, crimson. November. Brazil. 1843.

— *maritima* (sea-side). Lilac, white. Buenos Ayres.

— *ma'xima* (largest). 14. Dark pink. May. Guayaquil. 1844.

— *Mossia* (Mrs. Moss's). 1. Crimson, lilac. July. La Guayra. 1836.

— *alba* (white). White and purple. Brazil. — *odoratissima* (sweetest). Purple. Demerara. 1836.

— *Papeiansia'na*.

— *Perrin'sii* (Perrin's). 1. Purple. Brazil.

— *Pinellia'na* (Pinell's). Doubtful whether this and *pu'mila* are not identical with *margin'a'ta*.

— *pu'mila* (dwarf). 1. Purple. July. S. Amer. 1837.

— *Skinne'ri* (Skinner's). 14. Rosy-purple. August. Guatemala. 1836.

— *atro-ro'sea* (dark rose). 14. Dark rose. May. Guatemala. 1836.

— *specio'sa* (showy).

— *superba* (superb). 1. Purple. May. Guiana. 1838.

— *Walkeria'na* (Walker's). Lilac, crimson. May. Brazil. 1844.

CAULIFLOWER. *Brassica olera'cea caulifl'ra*.

Varieties.—There are many to be found in local catalogues; but they are only different names for the following:—*Early Cauliflower*; *Late Cauliflower*; *Large Asiatic*; and *Walcheren*. The last-named is included also among the Brocolis; for it unites these to the Cauliflowers, partaking of the character of each.

Sowing.—There are three seasons for sowing this vegetable.

First Sowing.—For the first main crop, a sowing should be made in the third week, or about the 24th of August, to raise plants for winter protection, to form

the first principal and main crops of the following year. Should the weather be very dry at the time of sowing, the soil should be thoroughly well watered before the seed is sown, and so continued to encourage the growth of the seedlings. As soon as these are up large enough to handle, beds should be formed in an open situation, well broken up, made rich, lined out neatly, and, if the weather is dry, well watered before planting, as well as afterwards. The best time for pricking out young plants of any kind, in dry weather, is late in the afternoon or in the evening. By this attention, strong, healthy plants will be ready for either finally planting out under hand-glasses, about the middle of October, or for protection in frames, or at the foot of walls. These protected plants are to form a second crop to those which were planted out under the hand-glasses, and may be finally planted out towards the end of February, if the weather is favourable, two feet and a half asunder each way; and should severe weather set in again, flower-pots just large enough to cover the plant may be turned over each, but taken off in all favourable weather. Care should always be taken to lift up the plants out of the nursery-beds, so as to insure uninjured roots.

Should the weather be very severe in the winter, the hand-glass crop must have a little protection more than that of the hand-light itself. But particular attention should be paid to airing at all times when the weather will permit, by either taking the lights entirely off, or tilting them.

If, through some mismanagement or misfortune, the winter stock should become short, a sowing towards the end of January becomes of importance. A very little seed must then be sown in a pan or box, placed in some moderate-heated structure, or in a gentle hotbed made up for the purpose; and when the seedlings are up, and large enough to handle, they should be pricked out on other very gentle hotbeds, care being taken to keep the plants up close to the glass, and inured to the open air. Plants raised in this way will be nearly as forward as those sown in August, and protected in cold frames through the winter.

The second Sowing should be at the end of February or beginning of March, and then either in a cold frame, or warm,

open border; or, if the weather be very unfavourable, a sowing may be made on a very gentle hotbed even at this time, attention to pricking-out, &c., given as before directed. From this sowing a third planting is made.

The third Sowing should be made about the last week in April, or first week in May, and the seedlings attended to as before, as to pricking-out, &c. From this sowing a fourth planting is made.

Fitness for Use.—When a cauliflower has arrived at its full size, which is shown by the border opening as if it was about to run, pull up the plant, as it never produces any useful sprouts; and if hung up thus entire, in a cool place, it may be preserved for several days. The best time to cut a cauliflower is early of a morning, before the dew is evaporated: if it is done during the meridian or afternoon of a hot day, it loses much of its firmness, and boils tough.

To preserve from Frost.—As frost destroys the cauliflower, it is a practice in November, before it sets in, to pull up the late-standing plants, and the leaves being tied over the head, to hang each up in a coal-shed or cellar, by which means they remain good for some time. But a better mode is to bury them in sand, laying them in alternate layers with the earth, in a dry situation. By this means they may be preserved to the close of January; or they may be put in a trench dug at the bottom of a wall, eighteen inches wide and deep, the plants being laid with their roots uppermost, in an inclining position, so that the roots of the second covered the top of the one preceding. The earth to be laid over them thick, a considerable slope given to it, and beaten smooth with the spade, to throw off rain.

Saving Seed.—Some should be from the first planted out of the hand-glass crop. The best with well-formed heads should be selected for this purpose, and marked for seed, by placing a strong stake to each for the future tying of the flowering stems up to. Gather each branch of seed as it ripens.

Diseases and Insects.—See CABBAGE and BROCOLI.

CAULOPHYLLUM. (From *caulon*, a stem, and *phylon*, a leaf; in reference to the stems ending as if it were in a leaf-stalk. Nat. ord., *Berberids* [*Berberidaceæ*]. Linn., 6-*Hexandria* 1-*Monogynia*.)

Hardy tuberous perennial; division of the roots; light, sandy peat.

C. thalictroides (thalictrum-like). 1. Yellow, green. N. Amer. 1755.

CEANO'THUS. (From *keanothus*, a name applied by Theophrastus to a plant now not known. Nat. ord., *Rhamnads* [Rhamnaceæ]. Linn., 5-Pentandria 1-Mono-gynia.)

Cuttings in sand, under a glass, of firm side-shoots answer best, either in April or August. The greenhouse varieties do well against a south wall, but may require a little protection in severe weather. Those from tropical regions require the usual treatment of the stove, or a warm conservatory. They are not particular as to soil; a little peat mixed with loam will be an advantage.

HARDY DECIDUOUS.

- C. America'nus* (American). 2. White. July. N. Amer. 1713.
- *collinus* (hill). 1. Light. July. N. Amer. 1827. Evergreen.
- *cuneatus* (wedge-shaped). 4. California. 1848.
- *dentatus* (toothed). 3. Blue. California. 1848.
- *divaricatus* (straggling). 4. Blue. June. California. 1848.
- *floribundus* (copious-flowering). Blue. June.
- *intermedius* (intermediate). 2. White. June. N. Amer. 1812.
- *Lobbia'nus* (Mr. Lobb's). Blue. July. California.
- *microphyllus* (small-leaved). 2. White. June. N. Amer. 1806.
- *Nepalensis* (Nepaul). 10. Yellow. Nepaul. 1820.
- *ovatus* (egg-shaped-leaved). 3. White. July. N. Amer. 1818.
- *pallidus* (pale). 10. Pale blue. July. N. Amer.
- *papillosus* (pimpled). 8. Blue. California. 1848.
- *perennis* (perennial). 2. White. August. Carolina. 1822.
- *rigidus* (stiff). 4. Blue. California. 1848.
- *sanguineus* (crimson-stalked). 2. White. June. Missouri. 1812.
- *tardiflorus* (late-flowering). 3. White. September. N. Amer. 1820.
- *verrucosus* (warted). 3½. Purple. Upper California. April.

GREENHOUSE EVERGREENS.

- C. Africa'nus* (African). Pale yellow. March. Cape of Good Hope. 1712.
- *azuleus* (blue). 10. Pale blue. April. Mexico. 1818.
- — *floréalba* (white-flowered). 10. White. April.
- *boxifolius* (box-leaved). White. April. Mexico. 1824.
- *Cape nsis* (Cape). 3. White. June. Cape of Good Hope. 1823.

STOVE EVERGREENS.

- C. infestus* (troublesome). 4. Mexico. 1824.
- *leuigatus* (smooth-leaved). 4. Green, yellow. W. Ind. 1818.
- *macrocarpus* (large-fruited). 3. Yellow. July. New Spain. 1824.
- *Mocini'nus* (Mocino's). 5. Mexico. 1824.
- *mystacinus* (bearded). 13. White, green. November. Africa. 1775.
- *sphaerocarpus* (round-fruited). 15. Green, yellow. Jamaica. 1824.
- *Zela'nicus* (Ceylon). 3. White. Ceylon. 1818.

CECRO'PIA. Snake-wood. (A classical name, after *Cecrops*, first king of Athens, who built that city, and called it Cecropia. Nat. ord., *Atrocarpads* [Atrocarpaceæ]. Linn., 22-Diaceia 2-Diandria.)

All the *Atrocarpads* abound in milky juice, by which they are easily distinguished from the Nettleworks, with which they are allied. From many of the genera, and from *C. pelta'ta*, caoutchouc, or India rubber, is obtained. Stove evergreen trees; cuttings of ripened shoots, placed in sandy peat, under a bell-glass, and in a moist bottom-heat, in April; peat and loam in a rough state, with a little sand. Summer temp., 60° to 85°; winter, 48° to 55°.

- C. co'ncolor* (one-coloured). 20. Brazil. 1822.
- *palmata* (hand-leaved). 20. Brazil. 1820.
- *pelta'ta* (shield-leaved). 30. Jamaica. 1778.

CEDRONE'LLA. (A diminutive of *kedron*, the cedar; referring to the fragrant, resinous scent. Nat. ord., *Labiates* or *Lip-worts* [Lamiaceæ]. Linn., 14-Didynamia 1-Gymnospermia. Allied to *Dracocephalum*.)

It is worthy of remark that the *Lipworts* are all destitute of any deleterious qualities, and that most of them are fragrant and aromatic—as the lavender, salvia, rosemary, mint, balm, and hyssop, &c. Greenhouse plants. Divisions of the roots of the herbaceous species; cuttings of the evergreen; sandy loam and a little peat. Winter temp., 38° to 40°.

- C. ca'na* (hoary-leaved). 3. Crimson. July. New Mexico. 1851.
- *cordata* (heart-shaped-leaved). 1. Purple. July. N. Amer. 1824.
- *Mexica'na* (Mexican). 2. Purple. Mexico.
- *pallida* (pale-flowered). 1½. Rose. September. Mexico. 1844.
- *tryph'ylla* (three-leaved). Pale purple. July. Canaries. 1697. This is a greenhouse evergreen shrub; but all the others are herbaceous perennials.

CE'DRUS. The Cedar. (From the Arabic *kedron*, or *kedree*, power; in reference to its majestic appearance; but some have supposed from *Cedron*, a brook in Judea. Nat. ord., *Conifers* [Pinaceæ]. Linn., 21-Monæcia 10-Monadelphica.)

Hardy evergreen trees. Seeds, sowed in the cones, extracted by steeping the cones in water, and boring a hole down their centre so as to split them, and sowing in sandy soil, in March; also by cuttings, under a hand-light; and the *deoda'ra* by inarching and grafting on the common Cedar, and on the Larch; but it is doubtful if the latter will answer as a stock; deep, sandy soil.

- C. Africa'nus* (African. *Mount Atlas Cedar*). May. Mount Atlas. 1843.
- *deoda'ra* (deodara). 120. Nepaul. 1822.

There are other varieties of this—*crassifol'lia* (thick-leaved); *tenuifol'lia* (thin-leaved); and *vir'idis* (green).

- C. Le'bani* (*Cedar* of Lebanon). Levant. 1693.
- *fol'lis-argenteis* (silvery-leaved). 80. May.
- *nanus* (dwarf).

There are other varieties of this species, as

glauca (milky-green); *intermedia* (intermediate); *pendula* (pendulous-branched); *pyramidalis* (pyramid-shaped); and *pyramidalis argenteis* (silvery pyramid-shaped).

CEL'LANDINE. *Chelido'nium* and *Bocco'nia frute'scens*.

CELA'STRUS. Staff-tree. (From *kelas*, the latter season; referring to the fruit hanging on the trees all winter. Nat. ord., *Spindle-trees* [Celastraceæ]. Linn., 5-Pentandria 1-Monogynia.)

Cuttings of the half-ripened shoots in sand, under a glass; peat, and very sandy, fibry loam. The stove and greenhouse species require the treatment common to each department. The hardy species may be propagated by layers in autumn, and *scandens* by seeds; *bulbatus* seldom ripens its seeds. Deep, loamy soil for those hardy climbers.

HARDY DECIDUOUS CLIMBERS.

C. bulbatus (blistered). 20. White. July. Virginia. 1759.
— *scandens* (climbing). 15. Yellow. May. N. Amer. 1736.

STOVE EVERGREEN SHRUBS.

C. Mexicanus (Mexican). 7. Mexico. 1824.
— *multiflorus* (many-flowered). 4. White. May. South Europe. 1816.
— *myrtifolius* (myrtle-leaved). 20. White. May. Jamaica. 1810.
— *nutans* (nodding). 5. White. E. Ind. 1810. Climber.
— *paniculatus* (panicked). 3. Greenish. May. E. Ind. 1841.
— *quadrangularis* (square-stalked). 10. White. Brazil. 1820.
— *trigynus* (three-styled). 5. May. Isle of France. 1824.

GREENHOUSE EVERGREEN SHRUBS.

C. burifolius (box-leaved). 4. White. May. Cape of Good Hope. 1752.
— *cassinoides* (cassine-like). 4. White. August. Canaries. 1779.
— *cernuus* (drooping). 5. White. May. Cape of Good Hope. 1817.
— *cymosus* (cymose). 3. White. July. Cape of Good Hope. 1815.
— *emarginatus* (notch-leaved). 8. Yellowish. Cape of Good Hope. 1820.
— *flexuosus* (zigzag). 6. White. May. Cape of Good Hope. 1826.
— *ilicifolius* (holly-leaved). 3. White. Cape of Good Hope. 1817.
— *laurifolius* (laurel-like). 3. White. June. Cape of Good Hope. 1818.
— *linearis* (narrow-leaved). 4. White. May. Cape of Good Hope. 1818.
— *lucidus* (shining). 2. White. May. Cape of Good Hope. 1722.
— *lycioides* (box-thorn-like). White. August. Canaries. 1821.
— *macrocarpus* (large-fruited). White. Peru. 1826.
— *oleoides* (olive-like). 3. White. May. Cape of Good Hope. 1824.
— *pteroecarpus* (wing-fruited). 3. White. July. Cape of Good Hope. 1824.
— *punctatus* (dotted-branched). Greenish. Japan. 1817. Climber.
— *pyracanthus* (fire-spined). 3. White. May. Cape of Good Hope. 1742.

C. retusus (blunt). 6. Yellow. Peru. 1824.
— *rigidus* (stiff). 3. Yellow. May. Cape of Good Hope. 1818.
— *rostratus* (beaked). White. May. Cape of Good Hope. 1821.
— *tetragonus* (four-angled). 6. White. Cape of Good Hope. 1810.
— *tricuspidatus* (three-pointed). 6. White. May. Cape of Good Hope. 1818.
— *undatus* (waved). 4. White. May. Cape of Good Hope. 1826.

CELERY'AC, or TURNIP-ROOTED CELERY. (*A'pium grave'olens rapaceum*.) Of this variety of celery there is said to be a hardier kind cultivated by the Germans, called by them *Knott-celery*.

Sowing.—It may be sown in March, April, and May, to afford successional plantations in June, July, and August. Sow in drills six inches apart, and keep regularly watered every evening in dry weather. The bed must be kept free from weeds, and when about three inches high, the plants may be pricked out into another border in rows three inches apart each way, giving water abundantly and frequently. By adopting the precautions mentioned in the cultivation of celery, the same seed-bed will afford two or three distinct prickings. In the neighbourhood of Dresden, where this vegetable is grown in great perfection, they sow in February or March, in a hotbed, under glass; and the plants are removed in April, when two or three inches high, to another hotbed, and set an inch and a half apart. The fineness of the plants is there attributed to the abundance of water with which they are supplied.

When five or six inches high, they are fit for final planting in rows two feet asunder, and the plants eight inches apart on the level ground, or in drills drawn with the hoe three inches deep, as they only require earthing up a few inches with the hoe. In dry weather they should be watered plentifully, at least every other evening. Keep them free from weeds. They require a light, fertile soil.

Sowing Seed.—The directions given for saving the seed of celery are in every respect applicable to this vegetable.

CELERY. *A'pium grave'olens*.

Varieties.—There are the Gigantic, Dwarf Curled, Common Upright, Red-stalked, Upright, Giant, Hollow Upright, and the Solid-stalked (*red* and *white*). The red chiefly for soups, the white being much more delicate in flavour; *violet*, solid, very superior, blanches white;

Turc, solid, white, for autumn; *Cole's superb*, red and white; and *Nutt's champion*; the last-named being the best we have cultivated.

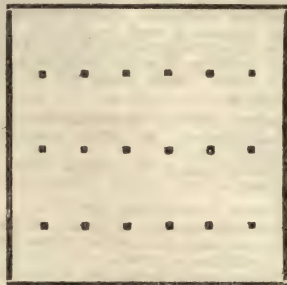
Sowing.—The first sowing may be made about the middle or toward the end of February, sowing a very little seed in a pan or box placed in any heated structure, and having a gentle hotbed made up ready to receive the young plants as soon as they are fit to prick out. The soil cannot be too rich for them; and, if pricked out in gentle hotbeds under glass, which is best, the young crop should be kept up within two or three inches of the glass, and attention paid to frequent watering, earth-stirring, and airing, in favourable weather.

The sowing for a main crop should be made about the first week in March; and although it may be sown in a rich, warm border, yet it is better to make a gentle hotbed for this sowing, even if it is only of four boards nailed together, to keep up the earth round the sides of the bed, and no glass to cover it; but, if an old light can be spared until the plants are up, all the better. Several prickings-out may be made from this sowing in any rich earth, in open situations, having the beds made up neatly ready for pricking out, either in warm, showery weather, or during evenings in dry weather. The plants should be inserted six inches apart in the nursery-beds, well supplied with water, until the plants are established, and the earth among them frequently stirred.

A third sowing may be made about the second week, or middle of April, in the open, warm border, to be attended to as before mentioned, as to pricking-out, watering, &c., only that cool situations will be found best, such as north borders for summer pricking-out, for a supply to plant out for winter and spring use.

Final planting; the single-trench system.—The trenches, where the soil will allow of it, may be eight or ten inches deep, to receive the plants for the first summer plantings; but, as the season advances, not so deep by two inches at each successive planting; and, lastly, on the level surface, for late winter and spring use. When planted in deep trenches for the first crop, the rows may be much nearer together. Another method of planting out the principal and late crops is, to dig out a trench, four and a half feet wide,

and one foot deep, placing the earth half on one side, and half on the other side; this done, give a thorough good manuring, as the soil cannot be made too good for this vegetable; let it be neatly dug in, and the surface made smooth as the work goes on; then lift the plants with a trowel from the nursery-beds, to insure their having good roots; let them be planted precisely one foot from row to row, and six or seven inches from plant to plant, the row crossways of the trench, thus:—



Thoroughly well water; and, in the course of a week after planting, the earth should be carefully stirred over the whole bed.

The plants should not be shortened, as many persons do; but remove any decayed or broken leaf, and all side-shoots from the plants, one by one, being careful not to injure other leaves or the roots.

Earthing up.—The first earthing up should be done with a small trowel, holding the leaves of the plant together in one hand, and stirring and drawing up a little earth to the plant with the other. The next earthing is done by the help of two light boards, six to eight inches broad, of the same length as the trench is wide; these to be placed between two of the rows of plants by two persons; then place between these boards well-broken earth, as much as required; draw up the boards steadily; do the same in the next space, and so on until the work is completed. By the last-mentioned method of final planting, more than double the quantity can be grown on a given space of ground, and the heads are quite as fine as in the single-trench system. It is also handy for protection in winter, either with hoops and mats or litter.

The trench being dug out four and a

half feet wide, allows room for six plants across it, at six inches apart from plant to plant, leaving three inches' space from the outside of the trench.

Frost.—At the appearance of very severe weather setting in at any time during the winter months, three or four dozen heads of the celery may be taken up without cutting away any part of them, and laid in dry earth, sand, or sifted coal-ashes, so as to be handy for immediate use.

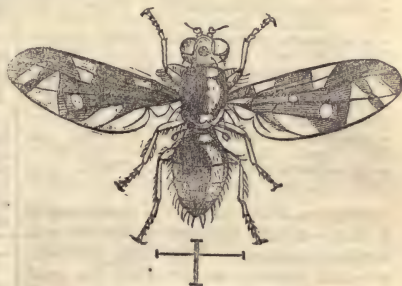
Manuring.—In the seed-bed, when pricked out, and in the bed for final growth, too much of the richest manure cannot be applied. Upon this, and upon the roots being uninjured at each removal, depend the fineness and excellence of the celery; any check to its growth is never recovered, but renders it dwarf and stringy. Liquid-manure should be given to it frequently.

To save Seed.—Some plants must be left where grown; or, in February or March, some may be carefully taken up, and, after the outside leaves are cut off, and all laterals removed, planted in a moist soil a foot apart. Those which are most solid, and of a middling size, are to be selected. When they branch for seed, they must be tied early to a stake, to preserve them from the violence of winds. The flower appears in June, and the seed is swelling in July. If dry weather occurs, they should be watered every other night. In August the seed will be ripe, and, when perfectly dry, may be rubbed out and stored.

Diseases.—In heavy, wet soil it is liable to have its stalks split and canker. The soil for earthing up cannot be too light and dry. We have seen coal-ashes employed for the purpose most successfully.

CELERY FLY. (*Tephritis onopordinis*.) In the autumn it is very common to observe part of the leaves of Celery-plants blistered and turned yellow; and this occurs occasionally to such an extent, that their growth is checked and their size diminished. If the withered parts are examined, and the skin of the blisters is raised, there will be found beneath it some small green grubs, that have eaten away all the green pulp (*parenchyma*) of the parts so withered. These grubs are the larvæ of the Celery Fly. The grubs may be found in the leaves of the Celery

in June, July, September, October, and November; for there are two or more broods of them in the course of the year. The grubs, though less frequently, are found doing similar damage to the leaves of Alexanders and Parsnips. When full grown, the grubs descend into the earth, and remain in the chrysalis state until the spring following, when they give birth to the fly. The Celery Fly may usually be found upon the leaves of the laurel, hovering over flowers and resting upon palings in the sunshine, from the middle of May to the end of July. It is one of the most beautiful of the English two-winged flies, and has been thus described by Mr. Westwood:—The general colour of the body, which is five-jointed, varies from rusty-brown to shining black; head buff, with black hairs; legs yellow; thorax sprinkled with long black hairs; wings black, with various pale spots; eyes green. The whole length of the insect is not more than one-sixth of an inch, and its wings, when outspread, barely half an inch across. The cross-lines in our woodcut show these proportions, as well as the insect magnified.



The motions of this fly are very peculiar: seated upon a leaf in the sunshine, the wings are partially extended, yet partially elevated, and it has a sideling kind of motion. The withered leaves of the celery should be picked off, and the grubs within them crushed as soon as seen. Mr. Westwood suggests that a string, smeared with bird-lime, and stretched over the celery-plants, might catch many of the parents.—*The Cottage Gardener*, i. p. 73.

CELO'SIA. Cockscorn. (From *kelos*, burnt; in reference to the burnt-like appearance of the flowers of some of the

species. Nat. ord., *Amaranthus* [*Amarantaceæ*]. Linn., 5-*Pentandria* 1-*Mono-gynia*.)

The flowers of the Cockscomb, *Celosia cristata*, are astringent, and much used by Asiatic physicians. Seeds in a hotbed in March; potted off repeatedly, and transferred to the hothouse or greenhouse; light, rich soil, well drained.

SHRUBS.

- C. echinata* (hedgehog). 1. Purple. July. Orinoco. 1821. Stove evergreen.
— *glauca* (milky-green). 1. White. July. Cape of Good Hope. 1818. Greenhouse evergreen.

GREENHOUSE ANNUALS.

- C. cristata* (crested). 2. Dark red. July. Asia. 1570.
— — *compacta* (compact). 2. Dark red. July. Asia. 1570.
— — *clata* (tall). 2. Dark red. July. Asia. 1570.
— — *flavescens* (pale yellow). 2. Yellow. July. Asia. 1570.

STOVE ANNUALS.

- C. argentea* (silvery-spiked). 1. Light flesh. July. China. 1740.
— — *linearis* (narrow-leaved). 1. Flesh. June. E. Ind. 1714.
— *castrensis* (camp). 2. Purple. July. E. Ind. 1739.
— *cernua* (drooping). 3. Purple. July. E. Ind. 1809.
— *coccinea* (scarlet). 5. Pink. July. China. 1597.
— *comosa* (tufted). 1. Pink. July. E. Ind. 1802.
— *dichotoma* (fork-branched). 1. Yellow. July. E. Ind. 1824.
— *margaritacea* (pearly). 2. Yellow. August. W. Ind. 1817.
— *Monsonia* (Monson's). 3. White. August. E. Ind. 1778.
— *nitida* (shining). 1. Purple. August. Malabar. 1706.
— *nodiflora* (knotted-flowered). 2. Green. August. E. Ind. 1780.
— *pyramidalis* (pyramidal). 1. White. July. E. Ind. 1820.

CELOSIA CRISTATA. *The Cockscomb of florists.*—All the varieties of this are well worth cultivating. The deep crimson-coloured varieties are generally the most esteemed; and of these there are tall and dwarf kinds, the latter being generally preferred, the comb at its extremities altogether, or nearly, touching the sides of the pot. Seeds should be sown in a sweet hotbed in spring; and, unlike the balsam, where splendid specimens are required, they should never be turned out of the hotbed until the combs are nearly full grown, when they may be set in the greenhouse. Two systems of culture may be adopted. First, as soon as the plants are one inch in height, prick out, and shift successively into larger pots, never allowing the plants to be pot-bound. By this method the

plants are strong before the combs appear, and you have a chance of having many very fine, but with the risk that many others, from their shape, will be fit only for the rubbish-heap. By the second method, the best for those with limited space, the young plants are pricked out a few inches apart into shallow pans, in light, rich earth, encouraged to grow freely, and then checked suddenly by keeping them cooler and withholding water, which will cause them to show their combs in a few days. Though small, you can easily observe those which are close and well shaped from those which will be upright and straggling. Select the best, pot them, and continue repotting, and encourage with heat and manure-water; and the strength of your culture going chiefly into the combs, these will be large, while your plants will be small. Where extremely dwarf plants are wanted, cut off young plants a little below the comb; insert the part with the comb into a small pot, in sandy soil, in strong heat, and a hand-glass over. Soil, sandy loam and very rotten dung, but sweet. Temperature when growing, 60° to 85° by day; 60° at night.

CELSIA. (Named after *Professor Celsius*, of Upsal. Nat. ord., *Figworts* [*Scrophulariaceæ*]. Linn., 14-*Didynamia* 2-*Angiospermia*.)

Chiefly from seeds, or raised in a slight hotbed, in March or April, and flowered in the greenhouse during the summer, or in favourable positions out of doors. The biennials require the protection of the cold pit during winter; light, sandy, open soil.

- C. Arcturus* (*Arcturus*). 4. Yellow. August. Candia. 1780. Half-hardy biennial.
— *betonicaefolia* (betony-leaved). 2. Yellow. July. N. Africa. Half-hardy biennial.
— *Coromandeliana* (*Coromandel*). 4. Yellow. July. E. Ind. 1783. Stove annual.
— *Cretica* (*Cretan*). 6. Yellow. July. Crete. 1752. Half-hardy biennial.
— *heterophylla* (various-leaved). Yellow. July. 1829. Half-hardy biennial.
— *lana'ta* (woolly). 2. Yellow. July. 1818. Half-hardy evergreen.
— *lanceolata* (spear-leaved). 3. Yellow. July. Levant. 1816. Half-hardy biennial.
— *orientalis* (eastern). 2. Brown, yellow. July. Levant. 1713. Hardy annual.
— *viscosa* (clammy). 3. Yellow. July. 1816. Stove annual.

CELTIS. Nettle-tree. (The name of a tree mentioned by Pliny. Nat. ord., *Elmwoods* [*Ulmaceæ*]. Linn., 23-*Poly-gamia* 1-*Monœcia*.)

Seeds, sown as soon as ripe; layers, also, and

cuttings of ripe shoots, in autumn; common, good soil. The East and West India species require protection; but there seems little to recommend in them over the European and North American species, which are hardy. The wood of *australis* is extremely plant.

HARDY DECIDUOUS.

- C. canescens* (hoary). 40. Green. Mexico. 1840. Half-hardy.
- *crassifolia* (thick-leaved). 20. Green. April. N. Amer. 1812.
- *lævigata* (polished). 20. Green. April. Louisiana.
- *occidentalis* (western). 20. Green. April. N. Amer. 1856.
- *cordata* (heart-leaved). 20. Green. April. N. Amer.
- *scabriuscula* (roughish). 20. Green. April. N. Amer.
- *pumila* (dwarf). 6. Green. May. N. Amer. 1812.
- *Sinensis* (Chinese). 12. Green. Asia. 1820.
- *Tournefortii* (Tournefort's). 8. Green. Levant. 1739.

STOVE EVERGREENS.

- C. aculeata* (prickly). 10. Green. Jamaica. 1791.
- *australis* (southern). 10. Green. Jamaica. 1796.
- *lima* (file-leaved). 20. Green, yellow. W. Ind. 1823.
- *micrantha* (small-flowered). 10. Green. August. Jamaica. 1739.
- *orientalis* (eastern). 50. Yellow, green. E. Ind. 1820.

CENTAUREA. Centaury. (The classical name of a plant, fabled by Ovid to have cured a wound in the foot of Chiron—Chiron being one of the centaurs, or war-horse breakers, of Thessaly. Nat. ord., *Compositæ* [Asteraceæ]. Linn., 10-Syngenesia 3-Frustranea.)

The Centaureas are so numerous that more than twenty generic names have been applied to the species. *C. cya'nea* and *depressa*, or corn-flowers, are much used in bouquets. Seeds of most of them in the open border, in the end of March. The tenderer ones may be raised on a hotbed, transplanted to another; a few might be preserved in a cold pit, if it was deemed desirable. Common soil.

HARDY ANNUALS AND BIENNIALS.

- C. Adami* (Adams's). 2. Yellow. July. Siberia. 1804.
- *Americana* (American). 2. Red. July. N. Amer. 1824.
- *Apula* (Apulian). 1. Yellow. July. N. Africa. 1817.
- *arachnoides* (cobweb-like). 3. Yellow. July. Italy. 1820. Biennial.
- *benedicta* (blessed-thistle). 2. Yellow. August. Spain. 1548.
- *cancellata* (latticed). 1. Yellow. July. N. Amer. 1824.
- *Chilensis* (Chilian). 1½. Lilac. June. Chili. 1836.
- *coarctata* (compressed). 1. Yellow. July. N. Africa. 1827.
- *crocodilium* (crocodilyum). 3. Purple. July. Levant. 1777.
- *Crupina* (Crupina). 3. Flesh. June. Italy. 1596.
- *Crupinoides* (Crupina-like). 1. Copper. July. N. Africa. 1818.

- C. cyanus* (blue-bottle). 3. Blue. July. Britain.
- *fusca* (brownish). Yellow. July. Sardinia. 1830.
- *glauca* (milky-green). 1. Pale yellow. June. Caucasus. 1808.
- *Iberica* (Iberian). 2. Purple. July. Iberia. 1818. Biennial.
- *Lippii* (Lippi's). 1. Pale purple. June. Egypt. 1793.
- *Melite'nsis* (Maltese). 1. Yellow. July. Malta. 1710.
- *moschata* (musky. *Sweet Sultan*). 2. Purple. August. Persia. 1629.
- *napifolia* (turnip-leaved). 3. Purple. July. Candia. 1691.
- *pallens* (pale). 2. Yellow. July. Egypt. 1816.
- *pulchella* (neat). 2. Purple. June. Persia. 1836.
- *pulchra* (beautiful). 1. Bright crimson. June. Cashmere. 1838.
- *Salmanica* (Salamanca). 3. Purple. July. South Europe. 1596. Biennial.
- *Sicula* (Sicilian). 2. Yellow. July. Sicily. 1710.
- *solstitialis* (solstitial. *Barnaby's Thistle*). 1. Yellow. July. England.
- *Stevenii* (Steven's). 2. Yellow. July. Caucasus. 1820. Biennial.
- *straminea* (straw-coloured). 1. Yellow. July. Egypt. 1801.
- *suaveolens* (sweet-scented). 2. Yellow. July. Levant. 1683.
- *sulphurea* (sulphur-coloured). 1. Yellow. July. 1815.
- *Torreana* (Torre's). 1½. Purple. July. Naples. 1830.
- *verutum* (dwarf). 2. Yellow. July. Levant 1780.

HALF-HARDY.

- C. Ægyptiaca* (Egyptian). 1. White. July. Egypt. 1790. Herbaceous perennial.
- *argentea* (silver-leaved). 2. Pale yellow. July. Candia. 1739. Evergreen shrub.
- *arguta* (sharp-notched). August. Canaries. 1839. Evergreen shrub.
- *cineraria* (grey-leaved). 3. Purple. July. Italy. 1710. Herbaceous perennial.
- *hyssopifolia* (hyssop-leaved). 1. Purple. July. Spain. 1812. Half-hardy evergreen.
- *Ragusina* (Ragusan). 2. Yellow. July. Candia. 1710. Evergreen shrub.
- *semperivirens* (evergreen). 2. Red, yellow. July. Spain. 1683. Herbaceous perennial.
- *spino'sa* (prickly-branched). 2. Purple. July. Candia. 1640. Herbaceous perennial.

HARDY HERBACEOUS.

- C. acanthoides* (acanthus-like). 2. Purple. July. 1827.
- *ala'ta* (winged-stalked). 2. Yellow. August. Tartary. 1781.
- *alba* (white-flowered). 2. White. July. Spain. 1597.
- *alpina* (alpine). 3. Yellow. July. Italy. 1640.
- *amara* (bitter). 2. Purple. July. Italy.
- *grandiflora* (large-flowered). 2. Purple. July. Switzerland. 1819.
- *pinnatifida* (leafleted). 2. Purple. July. Switzerland. 1819.
- *arenaria* (sand). 2. Purple. August. South Europe. 1778.
- *aspera* (rough). 2. Purple. August. South Europe. 1772.
- *Astrac'nica* (Astracan). 2. Purple. July. Astracan. 1818.
- *atropurpurea* (dark-purple). 3. Purple. July. Hungary. 1802.

- C. aurea* (great-golden). 2. Yellow. August. South Europe. 1758.
 — *Austriaca* (Austrian). 2. Purple. August. Austria. 1815.
 — *axillaris* (axillary). 1. Purple. July. Austria. 1823.
 — *Babylonica* (Babylonian). 7. Yellow. July. Levant. 1710.
 — *Balsamita* (Balsamita). 2. Yellow. July. Syria. 1820.
 — *Barrelieri* (Barrelier's). 2. Purple. July. Hungary. 1820.
 — *bracteata* (bracteated). 2. Purple. July. South Europe. 1817.
 — *calci'trapa* (star-thistle). 1. Pink. July. England.
 — *calci'trapodes* (calci'trapa-like). 1. Purple. June. Levant. 1683.
 — *caloccephala* (beautiful-headed). 3. Yellow. July. Levant. 1816.
 — *calophylla* (beautiful-leaved). 5. Yellow. July. South Europe. 1816.
 — *capitata* (hairy). 1. Purple. July. Siberia. 1810.
 — *centaureoides* (centaurea-like). 3. Yellow. June. South Europe. 1739.
 — *centaurium* (great centaur). 4. Yellow. July. Italy. 1596.
 — *cheiranthifolia* (wallflower-leaved). 2. Pale yellow. July. Caucasus. 1820.
 — *cichoracea* (endive-like). 2. Purple. July. Caucasus. 1816.
 — *cicutifolia* (cicuta-leaved). 3. Yellow. July. Podolia. 1820.
 — *cine'ra* (grey). 2. Purple. June. Italy. 1710.
 — *collina* (hill). 3. Yellow. June. South Europe. 1596.
 — *conci'na* (neat). 4. Yellow. August. Caucasus. 1818.
 — *coriacea* (leathery-leaved). 2. Purple. June. Hungary. 1804.
 — *coronopifolia* (buckhorn-leaved). 3. Yellow. June. Levant. 1739.
 — *crue'nta* (crimson-leaved). 1. Purple. July. 1816.
 — *dealbata* (whitened). 2. Purple. July. Caucasus. 1804.
 — *deci'piens* (deceiving). 2. Purple. August. France. 1816.
 — *declinata* (curved-down). 2. Purple. July. Caucasus. 1821.
 — *decumbens* (lying-down). 2. Purple. August. France. 1815.
 — *depre'ssa* (depressed). 1. Blue. July. Caucasus. 1818.
 — *deusta* (burned). 5. Dark red. August. Naples. 1818.
 — *diluta* (washed). 2. Pale purple. July. South Europe. 1781.
 — *dissecta* (deeply-cut-leaved). 2. Purple. July. Naples. 1823.
 — *elata* (tall). 4. Yellow. August. Mauritius. 1820.
 — *elongata* (lengthened). 2. Purple. August. Barbary. 1823.
 — *erio'phora* (wool-bearing). 1. Yellow. August. Portugal. 1714.
 — *eriphy'lla* (woolly-leaved). 3. Yellow. July. 1827.
 — *fe'rox* (fierce). 2. Yellow. August. Barbary. 1790.
 — *Fischeri* (Fischer's). 2. Blue. July. Russia. 1820.
 — *fusculosa* (many-floreted). 1. Purple. August. Italy. 1818.
 — *glastifolia* (wood-leaved). 4. Yellow. July. Siberia. 1731.
 — *hybrida* (hybrid). 1. Purple. July. Switzerland. 1819.
 — *incana* (hoary). 2. Purple. August. Naples. 1822.
 — *intyba'cea* (succory-leaved). 2. Purple. August. South Europe. 1778.
 — *Isma'rdi* (Isma'rd's). 1. Purple. July. Britain.
 — *Jacobae'folia* (Jacobæa-leaved). 3. Yellow. July. 1818.
 — *Kartschia'na* (Kartschi's). 2. Purple. June. Carniola. 1836.
 — *leuca'ntha* (white-flowered). 2. White. August. South France. 1816.
 — *leucophylla* (white-leaved). 2. Purple. July. Caucasus. 1823.
 — *limbata* (fringed). 3. Purple. July. Portugal. 1818.
 — *lingula'ta* (tongue-leaved). 2. Blue. July. Spain. 1824.
 — *linifolia* (flax-leaved). 1. Purple. July. Spain. 1827.
 — *macrocephala* (large-headed). 3. Yellow. July. Caucasus. 1805.
 — *maculata* (spotted-leaved). Purple. July. Siberia. 1816.
 — *maculosa* (spotted-calysed). 1. Purple. July. Siberia. 1816.
 — *Marshalliana* (Marshall's). 2. Purple. July. Caucasus. 1820.
 — *mollis* (soft). 2. Blue. July. Hungary. 1818.
 — *montana* (mountain. Perennial blue-bottle). 2. Blue. July. Austria. 1596.
 — *muricata* (point-covered). 1. Purple. July. Spain. 1621.
 — *myaca'ntha* (mouse-thorn). 1. Purple. August. France. 1820.
 — *neglecta* (neglected). 3. Yellow. July. Podolia. 1820.
 — *nervosa* (nerved). 2. Purple. July. South Europe. 1815.
 — *Nicae'nsis* (Nice). 2. Yellow. July. Nice. 1819.
 — *nitens* (sparkling). Purple. Caucasus. 1823.
 — *ochroleuca* (yellowish-white). 2. Pale yellow. July. Caucasus. 1801.
 — *orientalis* (eastern). 2. Yellow. Siberia. 1759.
 — *ornata* (ornamental). 2. Yellow. July. Spain. 1818.
 — *ovi'na* (sheep's). 1. Purple. August. Caucasus. 1802.
 — *paniculata* (panicked). 2. Purple. July. Europe. 1640.
 — *parviflora* (small-flowered). 2. Violet. June. Barbary. 1823.
 — *pectinata* (comb-edged). 1. Purple. August. France. 1727.
 — *peregrina* (diffuse). 2. Yellow. July. South Europe. 1749.
 — *Phry'gia* (Swiss). 2. Purple. August. Switzerland. 1633.
 — *ambigua* (ambiguous). 2. Purple. August. Switzerland. 1819.
 — *polyacanthia* (many-spined). 1. Purple. July. Portugal. 1804.
 — *polymorpha* (many-formed). 2. Purple. July. Spain. 1819.
 — *Pouzi'ni* (Pouzin's). 2. Purple. July. South France. 1824.
 — *pratensis* (meadow). 2. Purple. July. France. 1817.
 — *procumbens* (procumbent). 1. Purple. June. South Europe. 1821. Trahier.
 — *pubescens* (downy). 1. Yellow. July. 1804.
 — *pulcherrima* (very beautiful). 5. Yellow. July. Armenia. 1816.
 — *pullata* (sad-looking). 2. Purple. July. South Europe. 1789.

- C. radia'ta* (rayed). 2. White. July. Siberia. 1804.
— reflexa (bent-back-spined). 3. Yellow. July. Iberia. 1801.
— repens (creeping). 1. Yellow. July. Levant. 1739.
— rigida (stiff). 1. Purple. July. 1823.
— rivularis (rivulet). 2. Brown. July. Portugal. 1812.
— Roma'na (Roman). 3. Red. July. Rome. 1739.
— rupest'ris (rock). 2. Yellow. July. Italy. 1806.
— Ruth'e'nica (Russian). 3. Pale yellow. August. Russia. 1806.
— sabulo'sa (sand). 1. White. July. Siberia. 1820.
— salicifo'lia (willow-leaved). 2. Purple. July. Caucasus. 1823.
— sanguine'a (bloody). 2. Purple. July. 1827.
— seridis (endive-leaved). 1. Purple. July. Spain. 1686.
— Sessa'na (Sessane). 1. Blue. July. South Europe. 1816.
— Sibi'rica (Siberian). 1. Purple. July. Siberia. 1780.
— sonchifo'lia (sow-thistle-leaved). 1. Purple. August. Mediterranean. 1790.
— so'r'dida (sordid). 1. Purple. July. 1818.
— spatulo'la (spatulate-leaved). 2. Blue. July. Naples. 1825.
— sphaerocephala (globe-headed). 2. Purple. July. South Europe. 1683.
— spinulo'sa (small-spined). 2. Purple. July. Hungary. 1826.
— splende'ns (shining). 3. Purple. July. Spain. 1597.
— squarrosa (wide-spreading). 1½. Purple. July. Persia. 1836.
— stero'phy'la (stiff-leaved). 2. Purple. July. Podolia. 1820.
— Sta'be (Stæbe). 1. Red, yellow. June. Austria. 1759.
— stri'cta (erect). 1. Blue. July. Hungary. 1816.
— Tata'rica (Tartarian). 2. Yellow. July. Tartary. 1801.
— tenuifo'lia (fine-leaved). 2. Purple. July. Siberia. 1820.
— transalpi'na (transalpine). 4. Purple. July. Switzerland. 1819.
— trichocephala (hairy-headed). 1. Purple. July. Siberia. 1805.
— trine'rvia (three-nerved). 3. Purple. July. Podolia. 1816.
— uligino'sa (marshy). 3. Yellow. July. Portugal. 1816.
— uniflo'ra (one-flowered). 1. Purple. July. South Europe. 1819.
— Vochine'nsis (Vochin). 2. Purple. July. Austria. 1817.
— Weidmanni'na (Weidmann's). 2. Rose. July. Natolia. 1836.
— xanthi'na (yellow). 2. Yellow.

CENTRADE'NIA. (From *kentron*, a spur, and *aden*, a gland; referring to a spur-like gland on the anthers. Nat. ord., *Melastomads* [Melastomaceæ]. Linn., 8-*Ocandria* 1-*Monogynia*. Allied to *Lavosiera*.)

Stove evergreen. Cuttings of side-shoots, in March or April; sandy loam one part, and rough peat two parts; a cool stove, or a warm greenhouse. Summer temp., 55° to 75°; winter, 45° to 55°.

C. ro'sea (rose-coloured). 1. Rosy-white. April. Mexico. 1843.

CENTRA'NTHUS. (From *kentron*, a spur, and *anthos*, a flower; referring to a spur-like process at the base of the flower. Nat. ord., *Valerianworts* [Valerianaceæ]. Linn., 1-*Monandria* 2-*Digynia*.)

Hardy herbaceous perennials, except *C. calcitrapa*. Seeds and divisions; common soil.

C. angustifo'lius (narrow-leaved). 2. Crimson. June. South Europe. 1759.

— calcitrapa (caltrop-leaved). 1. Purple. June. Portugal. 1683. Hardy annual.

— ru'ber (red). 2. Crimson. June. Britain.

— flo're-a'l'bo (white-flowering). 2. White. June. Britain.

CENTROCLI'NIUM. (From *kentron*, a sharp point, and *kline*, a bed. Nat. ord., *Composites*. Linn., 19-*Syngenesia* 2-*Superflua*.)

Stove plants. Seeds and cuttings, in heat; sandy loam and leaf-mould. Summer temp., 50° to 75°; winter, 50° to 55°.

C. app're'ssum (close-pressed-scaled). 2. Rosy. January. Peru. 1836. Evergreen.

— reflexum (bent-back-scaled). 2. Rosy. August. Peru. 1830. Annual.

CENTROPO'GON. (From *kentron*, a spur, and *pogon*, a beard; in reference to the fringe which envelopes the stigma. Nat. ord., *Lobeliads* [Lobeliaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*.)

Notwithstanding the acid poisonous qualities assigned to Lobeliads, it is asserted that the soft fruit of the *Centropogon Suriname'nsis* is eatable. Herbaceous perennials. Divisions of roots; sandy peat, and rich, fibry loam; moisture and heat when growing, and comparative dryness and a low temperature when at rest. The Surinam species will require a few degrees higher temperature in winter than the others.

C. cordifo'lius (heart-leaved). Rose. June. Guatemala. 1839. Stove.

— fastuo'sum (proud). 2. Rose. November. Greenhouse.

— Suriname'nsis (Surinam). 2. Rose. November. Surinam. 1786. Stove.

CENTROSOLE'NIA. (From *kentron*, a sharp point, and *solen*, a tube; referring to the form of the corolla. Nat. ord., *Gesnerworts* [Gesneraceæ]. Linn., 14-*Didynamia* 1-*Gymnospermia*.)

Natives of tropical America. Require a warm, moist stove. Soil, equal parts of peat, leaf-mould, and sand; good drainage, and little water in winter. Cuttings in a warm frame, without a bell-glass.

C. bracte'scens (bractescent). 2. White. June. New Grenada. 1852.

— gla'bra (smooth-leaved). 1. White. October. La Guayra. 1846.

— pi'cta (painted-leaved). 3. White. Banks of Amazon. 1851.

CENTROSTE'MMA. (From *kentron*, a spur, and *stemon*, a stamen; referring to a horn, or spur-like process on the stamens of *Asclepiads*. Nat. ord., *Asclepiads* [Ascle-

piadaceæ]. Linn., 5-Pentandria 2-Di-gynia. Allied to Hoya.)

Stove evergreen twiner. Cuttings of rather firm shoots root freely in sand, under a bell-glass, with bottom-heat; fibry peat and sandy loam, with rubbly charcoal to keep the soil open. Summer temp., 60° to 80°; winter, 55° to 60°.

C. reflexum (bent-back). 2. August. Cream. Manila. 1833. It is also called *Hoy'a coriacea* and *Cyrtoceras reflexum*.

CEPHAE'LIS. (From *kephale*, a head; in reference to the arrangement of the flowers in heads, or corymbs. Nat. ord., *Cinchonads* [Cinchonaceæ]. Linn., 5-Pentandria 1-Monogynia. Allied to Psychotria.)

The Ipecacuanha of the shops is the root of *C. ipecacuanha*, a half-herbaceous plant, with creeping roots, growing in the damp, shady forests of Brazil. Stove plants. Cuttings of firm young shoots in sand, under a glass, and in moist bottom-heat. Sandy, fibry peat, and lumpy loam. Summer temp., 60° to 80°; winter, 50° to 55°.

C. alba (white). Pale pink. April. Guiana. 1824. — *axillaris* (axillary). 4. White. April. Brazil. 1816.

— *elata* (tall). 15. Purple. Jamaica. 1793. — *glabra* (smooth). Blue. April. Trinidad. 1820. — *involuta* (involutured). 5. White. July. Guiana. 1826.

— *ipecacuanha* (ipecacuanha). ½. White. January. Brazil. 1839.

— *muscosa* (mossy). White. May. W. Ind. 1824. — *pedunculata* (long-flower-stalked). 2. White. February. Sierra Leone.

— *punctata* (scarlet-involutured). 3. White. July. Jamaica. 1820.

— *purpurea* (purple-fruited). 1. White, purple. May. Trinidad. 1821.

— *Swartzii* (Swartz's). 4. Bluish. W. Ind. 1824. — *tomentosa* (downy). 4. Brownish. August. Trinidad. 1825.

— *violacea* (violet-berried). 1. White. June. W. Ind. 1818.

CEPHALANTHE'RA. (From *kephale*, a head, and *anthera*, an anther. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-Gynandria 1-Monandria. Allied to Limodorum.)

Hardy terrestrial orchids. Divisions; peat and loam.

C. ensifolia (sword-leaved). 2. White. June. Britain.

— *pallens* (pale). 1. White. June. Britain. — *rubra* (red). 2. Purple. June. Britain.

CEPHALA'NTHUS. Button-wood. (From *kephale*, a head, and *anthos*, a flower; flowers disposed in heads being a general characteristic of this order. Nat. ord., *Cinchonads* [Cinchonaceæ]. Linn., 4-Tetrandria 1-Monogynia. Allied to Spermacoce.)

The Button-wood grows in marshy places, from Canada to Florida, and prefers a damp, peat bed in this country. Hardy deciduous shrub. Cuttings in sandy soil, under a hand-glass, in the beginning of autumn; layers also. Sandy loam, with vegetable mould or peat.

C. occidentalis (western). 7. White. August. N. Amer. 1735.

— *brachypodus* (short-stalked). White. August. N. Amer.

CEPHALOTUS. (From *kephalotes*, headed; in reference to the simple scape, or flower-stalk, bearing a compound terminal spike. Nat. ord., doubtful. Dr. Lindley believes "the genus will fall into the ranks of the Crowfoots.")

This is the New Holland Pitcher-plant, found growing in the marshes of King George's Sound. Greenhouse herbaceous perennial. Offsets. Sound-sphagnum, peat, earth, and broken pots, well drained, and carefully watered; a bell-glass kept over it, and frequently cleaned. Summer temp., 60° to 75°; winter, 48° to 55°.

C. follicularis (follicled). 1. White. N. Holland. 1822.

CEPHALOTA'XUS. (From *kephale*, a head, and *taxus*, the yew; referring to the general appearance of these trees. Nat. ord., *Taxads* [Taxaceæ]. Linn., 22-Diacia 13-Polyandria. Allied to Phyllocladus.)

These are the Japanese Yews lately set apart from the old yews by Dr. Sieboldt, the Japan traveller, and Zuccarini, in their work called *Flora Japonica*. Hardy evergreens.

C. drupacea (berry-bearing). 12 to 20 feet. Japan. 1844.

— *Fortunei* (Fortune's). 40 to 60 feet. Japan. 1848.

— *pedunculata* (stalked-fruited. Lord Harrington's Yew). Japan. 1837.

CERA'DIA. (From *keras*, a horn; referring to the disposition of the spiny branches. Nat. ord., *Composites* [Asteraceæ]. Linn., 19-Syngenesia 2-Superflua. Allied to *Cremocephalum*.)

We keep this botanical curiosity as a sample of the scanty vegetation of the Island of Ichaboe, of guano notoriety; and we are told, by an officer of our navy, that when the plants are walked over in the evening the bruised stems emit a frankincense-scent. It succeeds best planted out on a sunny border in summer, and requires the protection of a greenhouse in winter. Cuttings of the branches. Sandy soil, with a little peat. Winter temp., 50° to 55°.

C. fureata (forked). Pale yellow. January. Africa. 1844.

CERANTHE'RA. (From *keras*, a horn, and *anthera*, an anther; alluding to a horny point on the anthers. Nat. ord., *Violetwurts* [Violaceæ]. Linn., 5-Pentandria 1-Monogynia.)

This should have been united to *Alsodeia*. Stove evergreen shrub. Cuttings in sandy soil, under a bell-glass, in a brisk bottom-heat; light, fibry loam. Summer temp., 55° to 60°; winter, 48° to 55°.

C. subintegrifolia (almost-entire-leaved). 6. White. June. Guinea. 1824.

CERAPTERYX GRAMINIS. The Antler

Moth. We have seen enough to render us quite ready to assent to Mr. Kirby's observation, that it is "the greatest enemy of our pastures." Fortunately, it is of rare occurrence in this country. It is the *Chareax* and *Bombyx graminis* of some entomologists. This moth, represented of its largest size in our drawing,



is generally altogether of a grey-brown colour, with a slender, whitish line running from the base of the fore-wing along its centre vein, and following along its branches. Another whitish line runs along near each edge of the fore-wing; near the point of the wing is a row of triangular, dark spots. There are also two dark, kidney-shaped spots near the front edge. The hind-wings are yellowish-brown, with a dark circular spot in the centre of each, and various dusky bars. The caterpillar is green, with brown spots, and smooth. In the few instances it has been found in this country it appeared in June. Mr. Kirby says, "It is said not to touch the foxtail grass. In the years 1740-41-42-48-49, they multiplied so prodigiously, and committed such ravages, in many provinces of Sweden, that the meadows became white and dry, as if a fire had passed over them. In 1759, and again in 1802, the high sheep-farms in Tweedale were dreadfully infested with a caterpillar, which was probably the larva of this moth. Spots a mile square were totally covered with them, and the grass devoured to the root."—*The Cottage Gardener*, v. 1.

CERA'STIUM. Mouse-ear Chickweed. (From *keras*, a horn; from the form of the seed-vessel. Nat. ord., *Olovieworts* [Caryophyllaceæ]. Linn., 10-*Decandria* 4-*Pentagynia*.)

There are many annuals of this genus, all unworthy of cultivation; but the following hardy trailing perennials are ornamental. They are easily propagated by divisions in the spring; will grow in any light, moderately rich soil, and are all white-flowered.

C. Biebersteini (Bieberstein's). 4. June. Caucasus. 1820.

— *purpurea* (purplish). 4. July. 1831.

— *Ledebourii* (Ledebour's). 4. June. Siberia.

— *Scarani* (Scarani's). 4. July. Naples.

CERASUS. Cherry. (From *Cerasus*, a town in Pontus, in Asia, whence the cherry was brought to Rome by Lucullus. Nat. ord., *Almondworts* [Drupacæ]. Linn., 12-*Icosandria* 1-*Monogynia*.)

Besides the cultivated cherry, the genus *Cerasus* includes species which contain virulent poisons, chiefly in their leaves and fruit-kernels. Hardy deciduous trees and shrubs, except where otherwise specified. Seeds sown when the fruit is ripe, or mixed up with three or four parts their bulk of dry sand, and frequently turned, to prevent sprouting, and sown in the March following; also by layers and cuttings from the roots, and from suckers; particular varieties by budding and grafting; deep soil, rather sandy.

C. affinis (related). White. May. Europe. 1837.
— *a-vium* (Birds'. *Corone*). 50. White. April. England.

— — *macrocarpa* (large-purple-fruited). 50. White. April. Switzerland.

— — *multiflora* (double-flowered). 15. White. April.

— — *pallida* (pale and red-fruited). 20. White. April.

— — *sybotris* (wood). 50. White. April. Britain.

— *borealis* (northern. *Choke*). 20. White. May. N. Amer. 1822.

— *Canadensis* (Canadian). 15. White. May. Canada. 1820.

— *capronia* (hautbois). 20. White. April. South of Europe.

— — *cordigera* (Guigne-heart-bearing). 20. White. April. South of Europe.

— — *Gobbetta* (Gobetta-white-flesh). 20. White. April.

— — *Griotta* (Griotte). 20. White. April.

— — *Montmorenciana* (Montmorency). 20. White. April.

— — *multiflora* (double-flowered). 12. White. April.

— — *pallidus* (pale. *Ceramble*). 20. White. April.

— — *persicifolia* (peach-leaved). 20. White. April.

— *polygyna* (many-pistiled. *Cera bouquet*). 20. White. April.

— — *variegata* (variegated). 10. White. April.

— *Caroliniana* (Carolina. *Evergreen bird*). 30. White. May. Carolina. 1759.

— *chamaecerasus* (ground-cherry). 8. White. May. Austria. 1897.

— *Chicasa* (*Chicasaw plum*). 8. White. April. N. Amer. 1806.

— *cornuta* (horned). 10. White. 1842.

— *depressa* (depressed. *Sand*). 4. White. May. South of Europe. 1805.

— *duracina* (hard). 20. White. April. South of Europe.

— — *cordigera* (heart-bearing). 20. White. April.

— — *mammillaris* (nippled). 20. White. April.

— — *obtusata* (blunted). 20. White. April.

— *hyemalis* (winter. *Black-choke*). 4. White. May. N. Amer. 1805.

- C. Japo'nica* (Japan). 2. Pink. April. Japan. 1810.
- *fo're-ple'no-a'tha* (white-double-flowered). 2. White. March. North of China. 1816.
- *mu'tiplex* (double). 4. Pink. April. Japan. 1810.
- *Julia'na* (St. Julian's). 20. White. April. South of Europe.
- *Heaumea'na* (helmeted). 15. White. April.
- *pe'ndula* (pendulous). 10. White. April. South of Europe. 1821.
- *lauroce'rasus* (common-laurel-cherry). 12. White. April. Levant. 1629. Evergreen.
- *angustifo'lius* (narrow-leaved). 8. White. April. Evergreen.
- *variega'tus* (variegated-leaved). 12. White. April. Evergreen.
- *Lusita'nica* (Portugal-Laurel). 20. White. May. Portugal. 1648. Evergreen.
- *Maha'leb* (Mahaleb). 20. White. April. Austria. 1714. Evergreen.
- *fru'ctu-fla'vo* (yellow-fruited). 20. White. May. South of Europe.
- *latifo'lium* (broad-leaved). 20. White. June. South of Europe.
- *Mara'scha* (Marascha). White. April. Europe. 1827.
- *Nepale'nsis* (Nepaul). 20. White. May. Nepaul. 1826. Half-hardy.
- *occidenta'lis* (West-Indian). 20. White. Jamaica. 1629. Stove evergreen.
- *pa'dus* (bird-cherry). 50. White. April. Britain.
- *arge'ntea* (silver-blotched). 20. White. April. 1846.
- *aucubafo'lia* (aucuba-leaved). 20. White. April. 1845.
- *bracte'osa* (long-bracted). 30. White. April. Europe.
- *heterophy'lla* (various-leaved). 20. White. April. 1845.
- *parvifo'ra* (small-flowered). 30. White. April. North of Europe.
- *ru'bra* (red. Cornish bird). 30. White. April. Britain.
- *vulga'ris* (common). 30. White. April. Britain.
- *Pennsylvanica* (Pennsylvanian). 30. White. May. N. Amer. 1773.
- *persicifo'lia* (peach-leaved). 8. White. May. N. Amer.
- *prostra'ta* (prostrate). 1. Pink. April. Crete. 1802.
- *pseu'do-ce'rasus* (bastard-cherry). 6. White. April. China. 1821.
- *pube'scens* (downy). 12. White. April. N. Amer. 1806.
- *pu'mila* (dwarf). 2. White. May. N. Amer. 1756.
- *pygma'a* (pigmy). 4. White. May. N. Amer. 1823.
- *salicinus* (willow-leaved). 4. White. April. China. 1822.
- *semperflo'rens* (ever-flowering). 20. White. April. China. 1822. Half-hardy.
- *sessifo'ra* (stalkless-flowered). 20. White. April.
- *se'ro'tinus* (late. American bird). 30. White. June. N. Amer. 1629.
- *retu'sus* (blunt-leaved). 30. May. S. Amer.
- *serrula'ta* (saw-edge-leaved). 4. White. April. China. 1822. Half-hardy.
- *spha'rocar'pa* (round-fruited). 10. White. June. Jamaica. 1820. Stove evergreen.

- C. Susqueha'na* (Susquehanna). White. May. N. Amer. 1800.
- *Virginia'na* (Virginian). 30. White. May. Virginia. 1724.

CHERRY CULTURE.—All our cultivated cherries appear to be derived, by the aid of various crosses, from *Ce'rasus dura'cina*, *Julia'na*, and *capronia'na*.

DESSERT FRUIT.

- | | |
|----------------------------------|----------|
| 1 Early Purple Guigne..... | May. |
| 2 Early Duke | b. June. |
| 3 Royal Duke | e. June. |
| 4 Elton | m. June. |
| 5 Florence | m. Aug. |
| 6 Late Duke | e. Aug. |
| 7 Morello | b. Sept. |
| 8 Büttner's October Morello | e. Sept. |

FOR PRESERVING.

- | | |
|-----------------|---------|
| 9 Kentish | e. Aug. |
|-----------------|---------|

For *Standards* take Nos. 2, 3, 4, 6, 7; these, however, are equally adapted for walls. For *forcing* take the Early Duke. This is so well adapted, both on account of its earliness and fine bearing, that few of the other kinds are ever used for this purpose. Some of the others would succeed very well, and the Tartarian has been pointed to by some as very eligible.

In addition to the above the following are in good repute:—Werder's Black Heart; Black Eagle; Bigarreau; Tartarian; Downton; and the new kind, Reine Hortense.

Propagation.—Both budding and grafting are resorted to; the former is the safest plan to avoid gum. The stocks used are those of the wild cherry for ordinary standards, or wall-trees; but, for a dwarfing-system, it has become customary, of late, to use the *Ce'rasus Maha'leb*, or Perfumed Cherry—so called on account of the agreeable perfume emitted by the wood whilst burning. In France this is called Bois de St. Lucia, and this has long been used as stocks. In addition to its promoting a dwarf habit, it is said to be adapted to very ordinary soils, totally unfit for the common cherry-stock. It is the usual practice to obtain the Mahaleb from layers; but no doubt cuttings will answer equally well. The ordinary cherry-stocks are raised from seed, generally obtained from trees of the same kind. They are preserved in sand through the winter, and sown in February. Care must be taken to preserve them from the mice. They may be transplanted in the following October, in rows two feet apart in the row. For dwarfs they may be budded the following season; but, if

standards are required, they must stand until they acquire the desired height.

Soil.—A deep and mellow loam, rather sandy, is best adapted to the cherry. It will, however, succeed in any ordinary garden-soil, if somewhat fertile in character, and one which parts freely with superfluous moisture.

Wall culture in growing period.—The first operation commences in the disbudding, stopping, and laying in of the young shoots: this will be in the early part of June. Gross fore-right shoots may at once be displaced, unless required to fill gaps; but if any doubt exists as to their becoming permanent stock, it will suffice to pinch off their points when four or five inches long.

The kinds differ so much in size of foliage that a difference becomes necessary in the distance at which the young wood is trained. This must be ruled by the size of the leaves. Such as the *Bigarreau* must be kept at least five inches apart; the *Morello* section may be placed from two to four inches apart. One of the main points is to destroy the aphides in time; they are almost sure to infest the trees before midsummer.

Culture in rest period.—The cherry, in general, requires less culture than most of our hardy fruits; and this because it produces so little breast-wood. If the summer management has been duly attended to, there will be little to perform during the rest period.

The remaining portion of the snags, or bases of the young shoots, which were pinched back in June, must now be pruned back to within two inches of the branch, unless required to furnish a blank space. Any late-made, immature-looking wood may be shortened to where solid; but no other shortening is required with bearing trees. All the shortening requisite, in order to multiply shoots to furnish the wall, should be done within three years after their transplanting. There will, however, be mostly a few shoots to be entirely removed in the winter's pruning; and, in doing this, regard must be paid to the distance previously given.

Uses, how to keep, &c.—We need scarcely point to the dessert section. The *Morellos* are famous as "brandy-cherries." The *Kentish* has the peculiar property of slipping from the stone, and, when dried, making a delightful confection; and, indeed, most of them are of great use for

confectionary purposes. The pulp of some makes a very good wine; and in Germany a liqueur is made from the kernel and pulp, bruised and fermented, known by the name of *Kirschwasser*.

The keeping of cherries on the trees is, indeed, the great obstacle to their much-extended culture. Were it not for this, cherries would be an every-day affair from the end of May until the end of October. The birds are their greatest enemies, and next to them the wasps. For preservation from birds there is nothing like good nets; but, as it takes much netting to cover an ordinary tree, a dwarfing-system should be had recourse to, by which means much fruit may be preserved in a little space. By strict preservation we have had the *May Duke* in use from the beginning of June until the middle of August; the *Late Duke* from the latter period until the end of September; and the *Morello* from the close of September until the end of October, or even later. The wasps are by far the most difficult to manage. We have, however, kept these at bay, for a few weeks, by covering the bushes with some material like Scotch gauze.

Disease.—We are not aware of any positive disease in the cherry, excepting *the gum*. This is an exudation of gummy matter, which generally follows a wound or bruise, and not unfrequently breaks out spontaneously. The best way to avoid this is to plant in soil of moderate quality. In general, a light, maiden loam is good enough, without adding a particle of manure or vegetable matter. See EXTRAVASATED SAP.

Insects.—The *Black Aphis* (see APHIS) is the greatest enemy, and next the *Red Spider*. (See ACARUS.) The wall and wood of the trees should be washed annually, in the rest season, with soft-soap water, six ounces to a gallon, adding plenty of lime, soot, and sulphur. When the aphides attack the young shoots in summer, there is no better plan than to dip each in a bowl of tobacco-water just before they are trained.

Winter pruning of Standards.—Very little is requisite with standards. Like all other fruit-trees, they are apt to produce an inconvenient amount of young spray, in the interior of the tree especially. All shoots of this character should be dressed away during the rest season, and all that are obviously not placed in a position to

receive the influence of light and air. Most of these must be spurred back, leaving a couple of inches of the base, which generally becomes a nucleus of spurs; and, although not well placed to produce fruit of the highest amount of flavour, yet they are sometimes of importance in inclement seasons; for we not unfrequently find a sprinkling of fruit in such situations, when all round the outside is barren. Orchard cherry-trees, which have to receive nets occasionally, will, as strength increases, require the removal of some of the coarsest and most unyielding shoots; for, were they permitted to extend themselves without control, the amount of netting required to cover them would become a rather serious item, and a drawback on their culture. Such unruly shoots, therefore, should be timely removed; for amputations of the large limbs should always be avoided in the cherry, and, indeed, in all trees liable to extravasation of sap. By a timely removal of such shoots, and by the occasional use of rope-yarn, or other fastenings, the tree may be kept in a somewhat compact form.

CERATI'OLA. (From a diminutive of *keras*, a horn; in reference to the stigma radiating into four divisions like little horns; as in the Carnation. Nat. ord., *Crowberries* [Empetraceæ]. Linn., 21-*Monæcia* 1-*Monandria*.)

The *Crowberries* are a small group of little bushes, with heath-like leaves, which are evergreen. The most of them inhabit the bleak and inhospitable regions both in Europe and in North America. Half-hardy under-shrub. Cuttings in sandy soil, under a glass, in a mild bottom-heat. Sandy peat, and a little very fibry loam. Winter temp., 40° to 45°.

C. ericoi'des (heath-like). 2. Brown. June. N. Amer. 1826.

CERATODA'CTYLIS. (From *keras*, a horn, and *ductylos*, a finger; alluding to the divisions of the fronds. Nat. ord., *Ferns* [Polypodiaceæ]. Linn., 24-*Cryptogamia* 1-*Filices*. This ought to have been united to *Allosorus*.)

Stove Fern. Divisions; peat and loam. Summer temp., 60° to 90°; winter, 50° to 55°.

C. osmundoi'des (osmunda-like). Brown. June. Mexico.

CERATO'NIA. Carob-tree. (From *keras*, a horn; in reference to the shape of the seed-pods. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 23-*Polygamia* 2-*Diæcia*. Allied to *Gleditschia*.)

This is believed to be the *Locust-tree* of Scrip-

ture. "The dry pulp in which the seeds are buried is very nutritious, and is supposed to have been the food of St. John in the wilderness; wherefore it is called the *Locust-tree*, and *St. John's Bread*."—*Lindley*. The North American *Locust-tree*, and the *Locust-tree* of the West Indies, are different from each other, and from the *Locust-tree* of Scripture. Greenhouse tree, hardly worth culture. Cuttings of ripe shoots in sand, under a hand-glass. Sandy loam.

C. siliqua (podded). 15. Red, yellow. September. Levant. 1570.

CERATOPE'TALUM. Red Gum-tree. (From *keras*, a horn, and *petalon*, a petal; the petals being jagged, or like a stag's horn. Nat. ord., *Cunoniads* [Cunoniaceæ]. Linn., 10-*Decandria* 1-*Monogynia*.)

Greenhouse tree. Cuttings under a bell-glass. in sand; rich, sandy loam. Summer temp., 55° to 75°; winter, 35° to 45°.

C. gummi'ferum (gum-bearing). 50. Yellow. N. Holland. 1820.

CERATOSTE'MA. (From *keras*, a horn, and *stema*, a stamen. Nat. ord., *Cranberries* [Vacciniaceæ]. Linn., 10-*Decandria* 1-*Monogynia*. Allied to *Thibaudia* and *Cavendishia*.)

Stove plant. Divisions; layers. Peaty soil.

C. longiflorum (long-flowered). Crimson. Peru. 1846.

CERBERA. (Named after the fabled dog, *Cerberus*. Nat. ord., *Dogbanes* [Apocynaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Plumiera*.)

Stove evergreens. Cuttings of young, rather ripe shoots, in April, in sand, under a glass, and in bottom-heat. Rich, fibry loam. Summer temp., 60° to 80°; winter, 45° to 55°.

C. Ahou'ai (Ahouai). 20. Yellow. June. Brazil. 1739.

— *fructicosa* (shrubby). 4. Red. May. Pegu. 1819.

— *maculata* (spotted). 4. White. June. Bourbon. 1782.

— *ovata* (egg-leaved). 3. Yellow. New Spain.

— *Thevetia* (Thevetia). 12. Yellow. June. S. Amer. 1735.

— *Thevetioi'des* (Thevetia-like). 8. Yellow. June. New Spain. 1800.

CER'CEIS. Judas-tree. (From *kerkis*, a shuttlecock; the name given by Theophrastus. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 10-*Decandria* 1-*Monogynia*.)

The wood of *C. siliquastrum* is beautifully veined, and takes a good polish. Hardy deciduous trees. Seeds, sown in a gentle hotbed, in spring; hardened off, and pricked out into a sheltered situation; the varieties by grafting. In the south of the island they do well in sheltered places, on a lawn; in the north, they require a wall.

C. Canadensis (Canadian). 18. Pale red. May. N. Amer. 1730.

— *pube'scens* (downy). 16. Pale red. May.

- C. siliguardum* (cylindrical-podded. Common Judas-tree). 20. Red. May. South Europe. 1996.
 — *flor-e-albo* (white-flowered). 20. White. May. South Europe.
 — *parviflorum* (small-flowered). 20. Purple. May. Bucharia. 1827.

CERCOCARPUS. (From *kerkos*, a shuttlecock, and *carpos*, a fruit. Nat. ord., *Roseworts* [*Rosaceæ*]. Linn., 12-*Icosandria* 1-*Monogynia*. Allied to *Geum* and *Purshia*.)

There is no unwholesome plant in this order; and the strawberry, raspberry, and the blackberry of the bramble, are the nearest plants in affinity to the rose itself. Then come the *Potentilla*, *Geum*, and *Agrimonia*, among which stands *Cercocarpus*, followed by the *Spiræas* and *Quil-laiads*. Greenhouse evergreen shrub. Cuttings of green shoots in sand, under a glass, in a little heat. Peat and loam. Winter temp., 46° to 45°.

- C. Fothergilloides* (Fothergilla-like). 12. Purple. May. Mexico. 1828.

CEREUS. Torch Thistle. (From *cereus*, waxy; referring to the fact that some of the spines are as pliant as soft wax, while others are as brittle as wax tapers. Nat. ord., *Indian Figs* [*Cactaceæ*]. Linn., 12-*Icosandria* 1-*Monogynia*.)

Cuttings, at any time, of either old or young shoots; the latter are the best, if the base of the cutting is well dried. Instead of inserting them firmly in sand, they do best when laid among rough material, such as peat charcoal, leaf-mould, and brick and lime-rubbish. They are generally described as stove plants; but, unless when they are just making their wood, they will endure a very low temperature, if kept dry. Unless for the winter-flowering varieties, and those desired to bloom at that season, no water will be requisite from October to March, if kept cool. Sandy loam, turfy peat, half-parts of lime-rubbish and dried cow-dung. Water freely when growing, and when in bloom. Summer temp., 55° to 85°; winter, 35° to 50°.

- C. Æthiops* (black-spined). Brazil. 1829.
 — *affinis* (related). White.
 — *albisetosus* (white-bristled. *Trailing*). 2. St. Domingo. 1816.
 — *albispinus* (white-spined). 2. St. Domingo. 1816.
 — *ambiguus* (doubtful). 2. Purple, white. July. 1827.
 — *amblygonus* (blunt-angled). Buenos Ayres. 1836.
 — *arcuatus* (arched). White. 1835.
 — *andrus* (golden-spined). S. Amer. 1825.
 — *bazarius* (clog-shaped). June. Mexico. 1838.
 — *bisiformis* (two-formed). June. Honduras. 1840.
 — *Chiloeensis* (Chiloe).
 — *coccineus* (scarlet). Scarlet. September. Brazil.
 — *cæruleoens* (bluish). 3. Blue. July. Brazil. 1829.
 — *crispatus* (curly). Rose. Brazil. 1829.
 — *cylindricus* (cylindric). 3. Peru. 1799.
 — *Deppæi* (Deppe's). 1. Peru. 1799.
 — *eburneus* (ivory). 3. S. Amer. 1818.
 — *eriphorus* (woolly). Red. 1835.
 — *euphorbioides* (euphorbia-like). 3. S. Amer.

- C. extensus* (long-stemmed). 6. Pale rose. August. Trinidad.
 — *Eyre'sii* (Eyre's). White, green. 1829.
 — *ferox* (fierce). 1. Brazil. 1827.
 — *fimbriatus* (fringed). 20. Pink. St. Domingo. 1836.
 — *flagelliformis* (rod-shaped. *Creeping Cereus*). Pink. Peru. 1699.
 — *flavispinus* (yellow-spined). 3. W. Ind.
 — *formosus* (handsome). White. Buenos Ayres. 1834.
 — *fulvispinosus* (tawny-spined). 3. S. Amer. 1796.
 — *gemmatus* (bud-bearing). July. Mexico. 1834.
 — *gracilis* (slender long-spined). S. Amer.
 — *grandiflorus* (great-flowering. *Night-blooming Cereus*). White, yellow. Jamaica. 1700.
 — *grandis* (great-spined). 3. Brazil.
 — *griseus* (grey). 3. Grey. S. Amer. 1809.
 — *Haworthii* (Haworth's). 3. Caribbees. 1811.
 — *heptagonus* (seven-angled). 3. White. July. W. Ind. 1728.
 — *hexagonus* (six-angled). 36. White. August. Surinam. 1690.
 — *humilis* (humble). S. Amer. 1827.
 — *hystris* (porcupine). S. Amer. 1808.
 — *Jamacaru* (Jamacaru). White. Brazil. 1835.
 — *Lanceolatus* (Lance's). Scarlet. May. Guiana. 1834.
 — *lanuginosus* (woolly). 1. White. August. W. Ind. 1690.
 — *latifrons* (broad-stemmed). White. September. S. Amer. 1830.
 — *Leea* (Mr. Lee's). 1. Bright red. Mexico.
 — *Lemairei* (Lemaire's). Yellow and white. June. 1854.
 — *leptophis* (slender). White, purple. 1835.
 — *leucanthus* (white-spined). 1. White, pink. Mendoza. 1830.
 — *MacDonaldi* (Mrs. MacDonald's great night-flowering *Cereus*). Yellow and white. July. 1851.
 — *maignus* (great). 3. White. June. St. Domingo. 1829.
 — *Martianus* (Martius's). 2. Pink. April. Mexico. 1838.
 — *monoclonos* (single-branched). 20. Rose, white. June. Caribbees.
 — *monstrosus* (monstrous). Red, white. S. Amer. 1816.
 — *multiplex* (multiplied). Scarlet. St. Domingo. 1829.
 — *myosurus* (mouse-tail). Brazil. 1828.
 — *myriophyllus* (thousand-leaved). Brown. 1815.
 — *Napoleonis* (Napoleon's). 6. Green, white. 1834.
 — *niger* (black). 3. S. Amer. 1820.
 — *noobilis* (noble). 3. Pink. W. Ind. 1811.
 — *ochroleucus* (cream-coloured). Striped. S. Amer. 1835.
 — *ovatus* (egg-shaped). Chili. 1827.
 — *oxygonus* (sharp-angled). Pink. Brazil. 1829.
 — *oxypetalus* (sharp-petaled). Red. May. Mexico. 1828.
 — *paniculatus* (panicled). White, red. St. Domingo. 1827.
 — *pentagonus* (five-angled). 3. White. July. S. Amer. 1769.
 — *Peruvianus* (Peruvian). 3. Red. August. Peru. 1728.
 — *Pitajaya* (Pitajaya). 6. White. Carthagena. 1836.
 — *polygonus* (many-angled). 10. White. Chili. 1827.
 — *quadrangulatus* (four-angled). White. W. Ind. 1809. Creeper.

- C. ramulosus* (branched). July. Mexico. 1838.
 — *regalis* (royal). 10. White. S. Amer.
 — *repandus* (waved-leaved). 20. August. W. Ind. 1728.
 — *roseaceus* (rosy). Rose. 1826.
 — *Roye'ni* Royen's). 2. White. S. Amer. 1728.
 — *senilis* (old-man). 20. Red. Mexico. 1823.
 — *serpentinus* (serpentine). 4. White, purple. Peru.
 — *splendidus* (splendid). Scarlet. September. Mexico. 1831.
 — *strictus* (erect). 3. S. Amer. 1823.
 — *subrepandus* (sub-waved-leaved). 3. 1817.
 — *tennis* (slender). Pink. Brazil. Creeper.
 — *tetracantha* (four-spined). Rose. July. Mexico.
 — *tetragonus* (four-angled). 3. White. July. S. Amer. 1810.
 — *triangularis* (triangular-stemmed). 1. White. August. W. Ind. 1590.
 — *trigonus* (triangular-stemmed). 1. White. S. Amer. 1809.
 — *triquetus* (three-sided). 3. S. Amer. 1704.
 — *tubiflorus* (tube-flowered). White. 1830.
 — *tunicatus* (tunicated). Brazil. 1832.
 — *undatus* (waved). China. 1829.

There are many other species named in botanical works; but as little is known of them but their names, and they are probably synonymous with some of those we have retained, we have omitted them until more certainly known. *Ce'reus speciosissimus* and some others have been joined to Cactus.

CERINTHE. Honeywort. (From *keros*, wax, and *anthos*, a flower; referring to its being a favourite flower with bees. Nat. ord., *Borageworts* [Boraginaceæ]. Linn., 5-Pentandria 1-Monogynia. Allied to *Anchusa*.)

Hardy annuals, except *C. maculata*. All by seeds, in common soil. *Maculata* requires a dry soil, or its fleshy roots decay.

- C. alpina* (alpine). Pale yellow. June. Carpathian Mountains. 1827.
 — *aspera* (rough). 2. Yellow, purple. July. South France. 1633.
 — *maculata* (spotted). 2. Yellow, red. July. South France. 1804. Perennial.
 — *major* (greater). 3. Yellow. July. South France. 1596.
 — *minor* (smaller). 2. Yellow, purple. July. Austria. 1570.
 — *retorta* (twisted). 2. Yellow, green. July. Levant. 1825.

CEROPE'GIA. (From *keros*, wax, and *pege*, a fountain; referring to the form and waxy appearance of the flower. Nat. ord., *Asclepiads* [Asclepiadaceæ]. Linn., 5-Pentandria 1-Monogynia. Allied to *Hoya*.)

Cuttings of small side-shoots in April, in sand, under a glass, and a little heat; sandy loam, fibry peat, and a little leaf-mould and charcoal. Summer temp., 55° to 80°; winter, 45° to 55°; giving the East Indian species the most heat. More curious than beautiful.

GREENHOUSE.

- C. aphylla* (leafless). 2. White. June. 1817. Evergreen twiner.

- C. australis* (southern). 3. N. Holland. 1820. Evergreen twiner.
 — *sinuata* (wavy-edged). 3. Pale red. July. Cape of Good Hope. 1818. Evergreen twiner.
 — *stapheliæformis* (staphelia-formed). 4. Purple. July. Cape of Good Hope. 1826. Evergreen trailer.
 — *torulosa* (uneven). Yellow. July. Cape of Good Hope. 1820. Evergreen twiner.

STOVE.

- C. acuminata* (taper-pointed). 2. Purple. July. Coromandel. 1820. Tuber.
 — *Africana* (African). 6. Yellow. July. E. Ind. 1823. Evergreen twiner.
 — *bulbosa* (bulbous). 2. Red, green. May. E. Ind. 1821. Trailer.
 — *dichotoma* (fork-branched). 1. White. July. E. Ind. 1804. Evergreen.
 — *elegans* (elegant). 20. Purple. August. E. Ind. 1828. Deciduous twiner.
 — *juincea* (rushy). 1. Yellow. E. Ind. 1822. Evergreen.
 — *Lu'shui* (Dr. Lush's). Purple. September. Bombay. 1833. Deciduous climber.
 — *oculata* (round-spotted). 6. Green. Red-spotted. September. Bombay. 1842. Deciduous twiner.
 — *Thwaitesii* (Mr. Thwaites's). 2½. Red, yellow, green. September. Ceylon. 1851.
 — *tuberosa* (tuberous). 8. Red, green. May. E. Ind. 1821. Tuberous perennial.
 — *vincafolia* (vinca-leaved). 20. Purple. September. Bombay. 1837. Evergreen twiner.
 — *Wrightii* (Dr. Wright's). 20. Green, purple. August. E. Ind. 1832. Deciduous climber.

CE'STRUM. (An ancient Greek name for another plant. Nat. ord., *Nightshades* [Solanaceæ]. Linn., 5-Pentandria 1-Monogynia. Allied to *Habrothamnus*.)

Cuttings in sand, in heat, in April; peat and loam. Of easy culture. With the exception of *tinctorium*, which is used for dyeing, and the few others we have selected, none are worth cultivating, being chiefly poisonous plants of no beauty. There are fifteen other species. Those we have described are stove evergreen shrubs, with the exception of *C. roseum*, which is a greenhouse evergreen shrub.

- C. alaternoides* (alaternus-like). 6. Yellowish. March. Trinidad. 1824.
 — *aurantiacum* (orange-coloured-flowered). 3. Orange. Guatemala. 1842.
 — *latifolium* (broad-leaved). 6. White. June. Trinidad. 1818.
 — *roseum* (rose-coloured-flowered). 3. Rose. July. Mexico. 1839.
 — *suberosum* (cork-barked). 5. Sulphur. June. 1815.
 — *tinctorium* (dyeing). 4. White. May. Caraccas. 1823.

CETONIA AURATA. Golden Rose-Beetle. This insect is the *Scarabæus auratus* of some naturalists. The grub is of a dirty-white colour, and the tail-end thicker and more highly glazed than the remainder of its body. It is usually found in decayed wood; but, being occasionally discovered in the nest of the ant,

under-ground, where it seems to feed upon the bits of wood of which the nest is composed, it thence has the popular name of "King of the Ants." After remaining about three years in the larva state, it makes a sort of cocoon of chips of wood, glued together by an excretion of its own. In this it passes the winter, and in June following emerges in the perfect form. The Rose Beetle flies well, with a considerable humming noise, during the hottest part of the day, passing from flower to flower, preferring, but not exclusively, our roses. It robs them of their honey; but not content with this, devours, occasionally, their nectaries, and the lowermost, juicy portion of the petals. Our drawing represents the larva, pupa,



and beetle of their natural size. The beetle is of a shining green-colour above, and the wing-sheaths dotted with white. Beneath, the body and head are coppery-red.—*The Cottage Gardener*, iii. 341.

This beetle is most severely felt by the gardener when it attacks the blossoms of his strawberries, which it does in May or June; but it also attacks the whitethorn, candytuft, elder, mountain-ash, and peony, the flowers of which it feeds upon. The female rose-chafers often lay their eggs in the ground; and the larvæ they produce are no doubt often confounded with those of the cock-chaffer (*Melolontha vulgaris*), being as large, and very similar.

CHABRÆA. (In honour of *D. Chau-*

brey, a Genevese botanist. Nat. ord., *Compositæ* [*Asteracæ*]. Linn., 19-*Syngenesia* 1-*Æqualis*.)

C. runcinata (runcinate). 1½. White. June. Chili. 1844.

CHÆNA'THE. (From *chairo*, to gape, and *anthos*, a flower. Nat. ord., *Orchids* [*Orchidacæ*]. Linn., 20-*Gynandria* 1-*Monandria*.)

Stove orchid. Offsets and divisions, placed in a very shallow basket, with sphagnum, or tied to a block of wood, and suspended in a high temperature and moist atmosphere; cool and dry in winter. Summer temp., 60° to 90°; winter, 50° to 60°.

C. Barkeri (Barker's). Para. 1837.

CHÆNE'STES. (From *chairo*, to gape; in allusion to the flower's mouth. Nat. ord., *Nightshades* [*Solanacæ*]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Lycium*.)

A stove evergreen shrub, propagated by cuttings in spring, in sand, under a bell-glass, with bottom-heat. Sandy loam and fibry peat. Summer temp., 60° to 80°; winter, 45° to 55°.

C. lanceolata (spear-head-leaved). 5. Purplish-brown. July. Quindiu. 1846.

CHÆNO'STOMA. (From *chairo*, to gape, and *stoma*, a mouth; in reference to the wide opening of the tube, or bottom part of the flower. Nat. ord., *Figworts* [*Scrophulariacæ*]. Linn., 14-*Didynamia* 2-*Angiospermia*.)

All natives of the Cape of Good Hope. Seeds sown in March, in a hot-bed, and transplanted to the flower-garden in May; and cuttings taken off in August and September, and potted in a greenhouse or cold pit, to be transplanted the following season.

GREENHOUSE ANNUALS.

C. foetida (foetid). 1½. White. June. 1794.
—*villo'sa* (long-haired). 1. White. June. 1783.

GREENHOUSE HERBACEOUS PERENNIALS.

C. cordata (heart-shaped-leaved). 1½. White. June. 1816.
—*hispida* (bristly). 1. White. July. 1816.
—*polyantha* (many-flowered). ½. Lilac, yellow. June. 1844.

CHÆTANTHE'RA. (From *chaite*, a bristle, and *anther*, an anther, or pollen-bag; the anthers being furnished with tufts of bristly hairs. Nat. ord., *Compositæ* [*Asteracæ*]. Linn., 19-*Syngenesia* 2-*Superflua*. Allied to *Mutisia*.)

All natives of Chili, and half-hardy herbaceous perennials, except *C. linearis*. Division of the roots, in March or April. *C. linearis* by seed. Peat and loam. Protection of greenhouse or cold pit in winter.

- C. Chilensis* (Chilian). 1. July. 1827. Annual.
 — *ciliata* (hair-fringed). 2. July. 1822.
 — *linearis* (narrow-leaved). Yellow. July. 1837. Annual.
 — *serrata* (saw-leaved). $\frac{1}{2}$. Yellow. July. 1827.
 — *tenuifolia* (fine-leaved). Yellow. July. 1827.

CHÆTOCALYX. (From *chaite*, a bristle, and *kalyx*, a flower-envelope; in reference to the calyx being furnished with bristles. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 17-*Diadelphia* 4-*Decandria*. Allied to *Hedysarum*.)

Stove evergreen twiner. Cuttings of ripe shoots in heat. Peat and loam. Summer temp., 60° to 85°; winter, 45° to 55°.

- C. Vincentina* (St. Vincent's). 6. Yellow. June. St. Vincent. 1823.

CHÆTOGASTRA. (From *chaite*, a bristle, and *gastron*, a cavity; referring to the cavities between the apex of the ovary and the bottom of the calyx being furnished with hairy scales. Nat. ord., *Melastomads* [Melastomaceæ]. Linn., 10-*Decandria* 1-*Monogynia*. Allied to *Osbeckia*.)

Seeds in hotbed, in March; and cuttings in sandy soil, in heat. Peat and loam. Summer temp., 50° to 80°; winter, 45° to 55°.

- C. gracilis* (slender). 1. Red, lilac. Brazil. 1834. Stove perennial.
 — *lanceolata* (spear-head-leaved). 1. White. January. Trinidad. 1820. Stove annual.
 — *strigosa* (short-bristled). $\frac{1}{2}$. Rosy-purple. August. W. Ind. 1848. Greenhouse evergreen.

CHÆFFLOWER. *Alternanthera achyrantha*.

CHALK. Carbonate of lime contains, when pure, carbonic acid, 45; lime, 55; but, as it usually occurs, it contains about twenty-four per cent. of water, and five per cent. of silica (flint), alumina (clay), and oxide (rust) of iron. After these deductions, it will be apparent, that if fifty tons of lime be applied to land, it will be equal to more than one hundred of chalk—a subject worthy of consideration, when it has to be conveyed from afar. Chalk is usually employed in large quantities, to improve the staple of a soil. It makes heavy soils less retentive of moisture, and light, sandy soils more retentive. On wet, sour lands it neutralizes the acids which render them unproductive. Some chalks contain phosphate of lime; and this being a constituent of all plants, such chalk is to be preferred. Some contain a large proportion of carbonate of magnesia, which is less beneficial. Chalk has also been shown, by Mr. Beaton, to be of great value in form-

ing the best of walks. See CONCRETE WALKS.

CHAMÆCYPARIS. White Cedars. (From *chamai*, ground, meaning dwarf, and *cypressus*, cypress; the Cypress-dwarf, or Bastard Cypress. Nat. ord., *Conifers* [Pinaceæ]. Linn., 21-*Monœcia* 10-*Decandria*. Allied to *Taxodium* and *Cypress*.)

Hardy evergreens. Seeds. Deep, sandy soil.

- C. Nutkaensis* (Nootka Sound). 70. N. Amer.
 — *obtusata* (blunt). 80. Japan.
 — *pisifera* (pea-bearing). A small tree. Island of Nippon.
 — *sphæroidea* (globe-coned). A small tree. N. Amer.
 — *squarrosa* (spreading). A bush. Japan.
 — *thurifera* (frankincense). 70. Mexico.

CHAMÆDORIA. (From *chamai*, dwarf, and *dorea*, a gift; referring to the nuts of this palm being easily reached. Nat. ord., *Palms* [Palmaceæ]. Linn., 22-*Diœcia* 6-*Hexandria*. Allied to *Areca*.)

Stove deciduous trees. Seeds, when obtainable; freely, by suckers from the roots. Rich, sandy loam. Summer temp., 60° to 80°; winter, 50° to 60°.

- C. elegans-mas* (elegant—male). 3 $\frac{1}{2}$. Scarlet. February. Mexico.
 — *Ernesti Augusti-mas* (Ernest Augustus's—male). Orange. New Grenada.
 — *fragrans* (sweet-scented). 8. White. Trinidad. 1820.
 — *gracilis* (slender). 10. White, green. Caraccas. 1803.

CHAMÆSTULA. Same as CA'SSIA.

CHAMÆLAUCIUM. (From *chamaileuke*, a dwarf, white poplar; because its heathy stems are miniatures of that tree. Nat. ord., *Fringe-myrtles* [Chamelauciaceæ]. Linn., 10-*Decandria* 1-*Monogynia*.)

This is the head of a small order of beautiful little greenhouse bushes, natives of New Holland, generally with the aspect of Heaths, having their flowers gathered into heads, and the flower-envelopes ending in awns, fringes, or bristles, which give them the appearance of Composites. A greenhouse evergreen shrub. Cuttings of the points of shoots, or side-shoots, when getting firm, in sand, under a bell-glass; one part fibry peat, and two of sandy, lumpy loam. Summer temp., 55° to 75°; winter, 35° to 45°.

- C. ciliatum* (hair-fringed). 2. White. May. N. Holland. 1825.

CHAMÆLEDON. (From *chamai*, dwarf, and *ledon*, a kind of *Cistus*.)

It is really *Azalea procumbens*; and we ought to have united it to the hardy section of that genus. See AZALEA.

- C. procumbens* (trailing). $\frac{1}{2}$. Pink. April. North of Scotland.

CHAMERHODIES. (From *chamai*, dwarf, and *rodon*, a rose; in reference to the appearance of the plants. Nat. ord., *Roseworts* [Rosaceæ]. Linn., 5-*Pentandria* 5-*Pentagynia*. Allied to *Rubus*.)

Hardy herbaceous perennials; chiefly by seeds; sandy loam, and a dry, elevated position.

C. grandiflorus (large-flowered). Yellow. June. Dahuria. 1828.

— *polygynus* (many-pistiled). Yellow. June. Siberia. 1824.

CHAMÆROPES. (From *chamai*, dwarf, and *rhops*, a twig. A comparative name, making the Fan-palm of the south of Europe a low twig in comparison to the huge, gigantic Palms of the tropics. Nat. ord., *Palms* [Palmaceæ]. Linn., 23-*Polygamia 2-Diœcia*.)

Seeds, imported; suckers, which are freely produced, with the exception of *C. gracilis* and *Guianensis*. The others will flourish in a greenhouse; and their leaves render them striking objects. In Edinburgh the *humilis* stood out several winters, with but a slight protection; rich, loamy soil. Summer temp., 50° to 80°; winter, 35° to 45°.

C. excolsa (tall). 30. Green, white. Nepaul. 1822.
— *gracilis* (slender). 10. Green, white. S. Amer. 1822. Stove.

— *Guianensis* (Guiana). 20. Green, white. Guiana. 1824. Stove.

— *humilis* (low). 10. Green, white. March. South of Europe. 1731.

— *hystris* (porcupine). 10. Green, white. Georgia. 1801.

— *Palmetto* (Palmetto). 20. Green, white. Carolina. 1801.

— *serrulata* (saw-leaved). 10. Green, white. N. Amer. 1809.

CHAMÆNERON. (From *chamai*, dwarf, and *neron*, the oleander. Nat. ord., *Onagrad* [Onagraceæ]. Linn., 8-*Octandria 1-Monogynia*. Allied to *Epilobium*.)

Hardy herbaceous perennial; seeds; division of the roots in spring; common soil.

C. Americanum (American). Red. July. N. Amer. 1825.

CHAMISSO'A. (Named after *M. Camisso*, a botanist. Nat. ord., *Amaranth* [Amarantaceæ]. Linn., 5-*Pentandria 1-Monogynia*.)

Stove evergreen shrub; cuttings of ripe shoots in heat, under a bell-glass; fibry, sandy loam. Summer temp., 60° to 85°; winter, 50° to 55°.

C. altissima (tallest). 5. Yellow. July. Jamaica. 1816.

CHAPTALIA. (Named after *M. Chaptal*, a French chemist. Nat. ord., *Composit* [Asteraceæ]. Linn., 19-*Syngenesia 4-Necessaria*. Allied to *Cussonia*.)

Hardy herbaceous perennial; division of the roots; light, sandy soil.

C. tomentosa (woolly). $\frac{1}{2}$. White. May. N. Amer. 1806.

CHARCOAL. Soot, a chief constituent of which is charcoal, has long been known as a very effective fertilizer; and burning has still longer been known as a mode of reducing stubborn soils to prompt pro-

ductiveness. But both these sources of fertility might owe their efficiency to other causes than their affording carbon to plants; and, comparatively, it is only lately that anything like a general knowledge has been diffused that mere charcoal is a good manure. Charcoal is a most efficient manure to all cultivated plants, especially to those under glass. Heaths, rhododendrons, cucumbers, onions, roses, orchidaceous plants, hydrangeas, camellias, melons, and pine-apples, have been the subjects of extensive and most successful experiments. We think no cultivated plant would be unbenefited by having charcoal applied to the soil in which it is rooted. It should be broken into small pieces, about the size of a nut, and, for potted plants, may be mixed in the proportions of one part charcoal to twenty parts earth. If applied to the open ground, one-fourth of a bushel may be sown over a square rod or perch, and dug in just before inserting the crop. The reason of charcoal being so useful as a manure is very apparent. MM. Sennebier, Ruckert, Sausure, and others, have demonstrated that plants are rendered much more luxuriant and productive by having carbonic acid applied to their roots, than other plants to whose roots no such application was made. Now, charcoal kept moist, as when buried in the soil, slowly combines with oxygen, and emits carbonic acid; in fact, it slowly dissolves. We are sorry to differ from such an authority as Liebig, who broadly asserts that "carbon never combines, at common temperatures, with oxygen, so as to form carbonic acid." This was long since shown to be otherwise by Count Rumford, and may easily be demonstrated to be incorrect, by confining a few ounces of fresh and moistened charcoal-powder, mixed with earth, in a glass receiver full of oxygen, over lime-water: carbonate of lime will form, showing the gradual evolution of carbonic acid. For draining, pieces of charcoal, about the size of filberts and walnuts, are among the best that can be employed.

CHARD. See ARTICHOKE.

CHARDOON. See CARDOON.

CHARLES'S SCEPTRE. *Pedicularis sceptrum Carolinum*.

CHARLOCK. (*Sinapis arvensis*.) A well-known weed.

CHARLWOODIA. New Holland Dragon-

tree. The species are now united to *Cordylone*.

CHASCA'NUM. (From *chasko*, to gape; referring to the irregular limb of the flower—approaching the form of a Lipwort-flower. Nat. ord., *Verbenaceæ* [Verbenaceæ]. Linn., 14-*Didynamia* 2-*Angiospermia*. Allied to *Stachytarpheta*.)

Greenhouse evergreen. Cuttings in spring, in sand, under a glass, in gentle heat. Loam and sandy peat, well drained.

C. cuneifolium (wedge-shaped-leaved). 4. White. April. Cape of Good Hope. 1821.

CHEESE-RENNET. *Galium verum*.

CHEILA'NTHE. (From *cheilos*, a lip, and *anthos*, a flower; in reference to the form of the seed-organs. Nat. ord., *Ferns* [Polypodiaceæ]. Linn., 24-*Cryptogamia* 1-*Filices*. Allied to *Adiantum*.)

Division of the roots, just when commencing to grow. Peat and loam. Summer temp., 55° to 80°; winter, 45° to 55°.

HARDY.

C. gracilis (slender). ♂. Brown. July. N. Amer. 1823.

— *odorata* (sweet-smelling). ♂. Brown. June. Switzerland. 1819.

— *vestita* (clothed). ♂. Brown. August. N. Amer. 1812.

GREENHOUSE.

C. caudata (tailed). ♂. Brown. June. N. Holland. 1824.

— *fragrans* (fragrant). ♂. Brown. August. Madeira. 1778.

— *hirta* (hairy). ♂. Brown. June. Cape of Good Hope. 1806.

— *macrophylla* (large-leaved). 1. Brown. August. W. Ind.

— *pteroides* (pteris-like). ♂. Brown. July. Cape of Good Hope. 1775.

— *suaveolens* (sweet-scented). Brown. August. Madeira. 1778.

STOVE.

C. crenulata (scalloped). 1. Brown. 1824.

— *cuneata* (wedge-leaved). 1. Brown. 1831.

— *Dicksonioides* (Dicksonia-like). 4. Brown. August.

— *farinosus* (mealy). Brown, yellow. Isle of Luzon.

— *ferruginea* (rusty). ♂. Brown. June. 1816.

— *lenticularis* (maggot-bearing). ♂. Brown. June. New Spain.

— *micromera* (parted-small). Mexico.

— *microptera* (small-winged). ♂. Brown. September. 1838.

— *profusa* (dangling). ♂. Brown. September.

— *repens* (creeping). 1. Brown. July. W. Ind. 1824.

— *rufa* (reddish-brown). ♂. Reddish-brown. W. Ind.

— *rufescens* (brownish-red). ♂. Brown. September. 1838.

— *sinuosa* (wavy-edged). 1. Brown. August. W. Ind.

— *spectabilis* (showy). 1½. Brown. September. Brazil. 1829.

— *tenuifolia* (slender-leaved). Brown. September. Ceylon.

— *viscosa* (clammy). Brown. Mexico. 1841.

CHEIMATOBIÆ BRUMATA. Winter Moth. This is the cause of more destruction to our fruit and other trees than almost any



MALE AND FEMALE.

other insect; for no weather is sufficiently severe to injure either them or their eggs; and the caterpillars, in the early spring, will feed upon the opening buds and leaves of almost every kind of tree. The females, being without wings, may be prevented ascending our standard fruit-trees by smearing round their trunks a band of tar; but this must be renewed, as it dries, every two or three days. The male moths begin to fly about just after sunset during November, and until the end of January. Their upper wings, when opened, measure across about one inch and a quarter; but, during the day, they look much smaller, for they fold them so as to form a triangle, and have their feelers or horns (antennæ) turned back over them. Those wings are pale grey, marked with various darker-waved lines. The underwings are greyish-white, often having a notched line crossing their centre. The body, delicate and tapering, is yellowish-grey. The female crawls to the top of a tree, and deposits her very small, oval eggs upon the blossom and leaf-buds, as well as upon the shoots. She will lay from 200 to 300 eggs. The caterpillars and the buds come to life together. At first they are grey, and scarcely thicker than a horsehair; but they cast their skins, and finally become the green-looper, of a yellowish-green colour, shining, and with a blue line down the back. On their sides are two yellowish-white lines. The apple-buds are their favourite food; but they destroy, without difficulty, the leaves of the hawthorn, lime, hazel, rose, elm, willow, and hornbeam.—(*The Cottage Gardener*, i. 53.) The caterpillar descends into the earth, and becomes a chrysalis about the end of May.

CHEIRA'NTHUS. Wallflower. (From *cheir*, the hand, and *anthos*, a flower; in reference to the custom of carrying the wallflower in the hand for a nosegay. Nat. ord., *Crucifers* [Brassicææ]. Linn., 15-*Tetradynamia*.)

Half-hardy evergreen under-shrubs, except where otherwise specified. Seeds and cuttings under a hand-light, in May or June, of particular varieties, and double-flowering especially. Most of the finer kinds will like the protection of a pit in winter, and may be employed for early blooming in the greenhouse. When left out of doors, a protection of a few evergreen boughs should be given them; herbaceous kinds by division. A light, rich, sandy soil suits them best; but even the tenderer species survive the winter on rock-work.

C. alpinus (alpine). $\frac{1}{2}$. Yellow. May. South Europe. 1810.

— *arbo'reus* (tree). 3. Yellow. May. Egypt. 1827.

— *capitu'tus* (round-headed). Yellow. June. Columbia. 1826. Hardy herbaceous perennial.

— *Cheiri* (Cheiri. Common Wallflower). 2. Orange. May. South Europe. 1573.

— *ferrugi'neus* (rusty-flowered). 2. Brown. May. South Europe. 1573.

— *flavescens* (yellowish). 2. Yellow. May. South Europe. 1573.

— *flor'e-pl'e'no* (double-flowered). 2. Yellow. May.

— *grandiflorus* (large-flowered). 2. Yellow. May. South Europe. 1573.

— *hæma'nthus* (double-bloody-flowered). 2. Crimson. May. South Europe. 1573.

— *hæma'nthus-variegat'us* (variegated-bloody). 2. Crimson. June. South Europe.

— *maximus* (largest). 2. Yellow. May. South Europe. 1573.

— *pat'ulus* (double-spreading). 2. Yellow. May. South Europe. 1573.

— *purpu'reus* (purple-flowered). 2. Purple. June. South Europe.

— *purpu'reus-variegat'us* (variegated-purple). 2. Purple. June. South Europe.

— *sangui'neus* (bloody). 2. Bark brown. May.

— *serra'tus* (saw-edged-flowered). 2. Yellow. May. South Europe. 1573.

— *thyrsoides* (thyrsé-flowered). 2. Blood. May. South Europe. 1573.

— *vari'us* (various-coloured). 2. Variegated. May. South Europe. 1573.

— *f'rmus* (firm). 1. Yellow. June. Europe. 1816.

— *fruticulo'sus* (small-shrubby). $1\frac{1}{2}$. Yellow. May. Britain. Hardy herbaceous perennials.

— *linifolius* (flax-leaved). 2. Purple. April. Spain. 1815.

— *mutabilis* (changeable). 3. Yellow, purple. April. Madeira. 1777.

— *longifolius* (long-leaved). 3. White, purple. September. Madeira. 1815.

— *ochroleuc'us* (pale yellow). $\frac{3}{4}$. Pale yellow. April. Switzerland. 1822. Hardy herbaceous perennial.

— *scopa'rius* (broom). 3. White, purple. June. Teneriffe. 1812.

— *arugino'sus* (rusty). 3. Rusty. June. Teneriffe. 1812.

C. scopari'us chama'leo (chameleon). 3. Yellow, purple. June. Teneriffe. 1812.

— *semperflo'rens* (ever-blooming). 2. White. Barbary. 1815.

— *frut'scens* (shrubby). 2. White. May. Teneriffe. 1815.

— *tenuifolius* (slender-leaved). 2. Yellow. June. Madeira. 1777.

CHEIROSTE'MON. Hand-plant. (From *cheir*, the hand, and *stemon*, a stamen; in reference to the formation of the stamens and style. They issue in a central column, bearing five curved anthers and a curved style in the middle, having much resemblance to a hand with long claws. Nat. ord., *Sterculiads* [Sterculiaceæ]. Linn., 16-*Monadelphia* 6-*Decandria*.)

Stove tree. Cuttings of rather firm shoots in sandy peat, under a glass, and in bottom-heat. Sandy loam and fibry peat. Summer temp., 60° to 80°; winter, 48° to 55°.

C. platanoïdes (plane-tree-like). 30. New Spain. 1820.

CHELIDONIUM. Celandine. (From *chelidon*, a swallow; alluding to the flowers opening on the arrival of that bird, and to the plant drying up on its departure. Nat. ord., *Poppyworts* [Papaveraceæ]. Linn., 13-*Polyandria* 1-*Monogynia*.)

The yellow juice of the common Celandine (*C. majus*) is said to be a violent acrid poison, and a popular remedy for warts. Hardy herbaceous perennials. Division. Common garden-soil.

C. grandiflorum (large-flowered). 2. Yellow. May. Dahuria. 1820.

— *lacinia'tum* (jagged-leaved). 2. Yellow. May. South Europe.

— *majus flor'e-pl'e'no* (large-double-flowered). 2. Yellow. September. Gardens.

CHELO'NE. (From *chelone*, a tortoise; the back of the helmet of the flower being fancifully compared to a tortoise. Nat. ord., *Figworts* [Scrophulariaceæ]. Linn., 11-*Didynamia* 2-*Angiospermia*. Allied to Pentstemon.)

Hardy herbaceous perennials, except where otherwise specified. Division of the roots, and cuttings of the young shoots under a hand-glass, in April or May; also by seeds. Sandy loam, and if a little peat and leaf-mould, all the better.

C. barba'ta (bearded). 3. Scarlet. July. Mexico. 1794.

— *car'nea* (flesh-coloured-flowered). 3. Flesh. July. Mexico.

— *ma'jor* (larger). 4. Orange-striped. June. — *centranthifolia* (centranthus-leaved). 7. Scarlet. September. California. 1834.

— *Gentianoïdes* (Gentian-like). 3. Orange, scarlet. July. Mexico. 1835.

— *glabra* (smooth). 4. White. August. N. Amer. 1730.

— *Lyo'ni* (Lyon's). 4. Purple. August. N. Amer. 1812.

C. Mexicana (Mexican). Scarlet. June. Mexico. 1842.

— *nemoro'sa* (grove). 1. Purple. August. N. Amer. 1827.

— *obliqua* (twisted). 4. Purple. August. N. Amer. 1752.

— *specto'sa* (showy). 4. Pale red. August. N. Amer.

CHENOLE'A. (From *chen*, a goose, and *leia*, prey; in reference to the plant being eaten by those birds. Nat. ord., *Chenopods* [*Chenopodiaceæ*]. Linn., 5-*Pentandria* 1-*Monogynia*.)

Greenhouse evergreen. Cuttings of half-ripe shoots under a glass, in sandy loam. Summer temp., 55° to 80°; winter, 35° to 45°.

C. diffusa (spreading). 1. Green. August. Cape of Good Hope. 1758.

CHE'RMES. See *PSY'LLA*.

CHERRY. See *CE'RASUS*.

CHERRY PEPPER. *Ca'psicum cerasifo'rme*.

CHERRY LAUREL. The common Laurel, *Ce'rasus lauro-ce'rasus*.

CHERVIL. Parsley-leaved. *Chærophy'llum sati'vum*. Fern-leaved Chervil, or Sweet Cicely, *C. aromaticum*, for soups, salads, &c. They are not often found in the kitchen-garden.

Soil and Situation.—The soil for these plants must be unshaded, light, with a large portion of calcareous matter, and well drained.

Sowing.—A principal sowing should be made in August; and from this sowing seed should be saved the following season. To continue the supply during the summer months a spring sowing should be made at the end of February, and at the end of every three or four weeks to the middle of July. Sow in drills, eight inches apart, a quarter of an inch deep, and thin the seedlings out to six inches apart in the rows.

CHESTNUT. See *CASTA'NEA*.

CHICKASAW PLUM. *Ce'rasus Chi'cāsa*.

CHICKEN GRAPE. *Vitis cordifo'lia*.

CHICKLING VETCH. *La'thyrus sati'vus*.

CHICK PEA. *O'cer ariet'i'num*.

CHICKWEED. *Als'i'ne*.

CHICORY. Succory, or wild Endive (*Cicho'rium i'ntybus*). Cultivated for use in salads, and for its roots, to roast for use like coffee.

Soil and Situation.—Like Endive, for the main crops it requires a rich, light soil, and for the earlier sowings a moister one, in every instance having an open situation allotted to it.

Sowing must be annually; for, although it is a perennial, yet, after being cut from two or three times, the leaves become

bitter and worthless. Sow from the beginning of March, and at intervals, to the end of June, or early in July. Sow moderately thick, in the same manner as Endive, the directions for cultivating which are equally applicable in every other particular.

Cultivation.—When the plants begin to cover the ground, thin to nine inches apart; and those removed plant out at similar distances. If the leaves grow very luxuriant, and shade the roots much, they must be cut off within an inch of the ground. Those grown from sowings antecedent to June, when of nearly full growth (which they arrive at in about four months from the insertion of the seed), must have all their leaves trimmed away, so as not to injure their hearts, and then covered over thick with sand, ashes, or long litter. By this treatment, those fresh leaves which are produced are blanched and crisp, losing their bitterness. Those from the sowings of June and July must, at the end of September, or early in October, be raised, and planted very close, by the dibble, in pots or boxes, having their leaves trimmed as before directed, and their roots shortened, previous to planting. Water must be given moderately in dry weather, until they are established; and shelter, if frosts occur, by a light covering of litter. When well rooted, they may be removed into the cellar, or other place, where the light can be completely excluded from them, to blanch for use as wanted, which change will be effected in six or seven days. Succory will bear a temperature of 60°, but thrives better in a rather lower one.

If the roots are vigorous, they will bear cutting two or three times, after which they are unproductive.

To obtain Seed, a few plants must be left in the open ground of the June sowing. They bear the severity of winter without protection, and shoot up in the spring, running to seed about May.

CHILI PEPPER. *Ca'psicum*.

CHILO'DIA. (From *cheilos*, a lip, and *odous*, a tooth; the lip of the flower being toothed. Nat. ord., *Labiates* [*Lamiaceæ*]. Linn., 14-*Didynamia* 1-*Gymnospermia*. Allied to *Prostranthera*.)

Greenhouse evergreen shrub; cuttings of young shoots set firm in sand, under a bell-glass; peat

and loam. Summer temp., 55° to 75°; winter, 40° to 45°.

C. australis (southern). 3. Violet. July. N. Holland.

— *scutellarioides* (scutellaria-like). 2½. Violet. N. S. Wales. 1828.

CHILOPSIS. (From *cheilos*, a lip, and *opsis*, like; referring to the irregular lobes of the corolla. Nat. ord., *Bignoniads* [Bignoniaceæ]. Linn., 14-*Didynamia* 2-*Angiospermia*. Allied to *Catalpa*.)

Greenhouse evergreen shrub; cuttings of half-ripened shoots in sand, under a bell-glass, in bottom-heat; peat and fibry loam. Summer temp., 60° to 90°; winter, 45° to 55°.

C. linearis (narrow-leaved). Rose. May. Mexico. 1825.

CHIMA'PHILA. (From *cheima*, winter, and *phileo*, to love; these little plants being green all winter. Nat. ord., *Wintergreens* [Pyrolaceæ]. Linn., 10-*Decandria* 1-*Monogynia*.)

Hardy herbaceous perennials; divisions and suckers; peat and sandy soil.

C. corymbosa (corymbose-flowered). ½. White. June. N. Amer. 1752.

— *maculata* (spotted-leaved). ½. Pink. June. N. Amer. 1752.

CHIMONA'NTHUS. (From *cheima*, winter, and *anthos*, a flower; referring to the time of flowering. Nat. ord., *Calycanths* [Calycanthaceæ]. Linn., 12-*Icosandria* 3-*Trigynia*.)

Half-hardy deciduous shrub; layers made in the beginning of autumn; seeds sown in March, in a gentle hotbed; deep, rich, sandy loam; requires a wall in most places, but, from its scent, should be admitted, during winter, to the greenhouse.

C. fragrans (fragrant). 6. Yellow, red. December. Japan. 1766.

— *grandiflorus* (large-flowered). 8. Yellow. December. China.

— *parviflorus* (small-flowered). 8. Pale yellow. December. Japan. 1818.

CHINA-ASTER. See **CALLISTEMMA.**

CHINESE ROSE. *Hibiscus rosea Sine'nsis.*

CHIOCOCCA. Snowberry. (From *chion*, snow, and *kokos*, a berry. Nat. ord., *Cinchonads* [Cinchonaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Psychotria*.)

The roots of *C. anguifuga* and *densiflora* are said to be a certain cure for serpent-bites in Brazil. Stove evergreen shrubs. Cuttings in sand, under a glass, in hotbed. Peat and loam. Summer temp., 60° to 80°; winter, 45° to 55°.

C. anguifuga (snake-defeating). 3. White. July. Brazil. 1824.

— *densiflora* (thickly-flowered). 3. White. Brazil.

— *racemosa* (racemed). 6. White. February. Jamaica. 1729.

CHIONA'NTHUS. Fringe-tree. (From *chion*, snow, and *anthos*, a flower. Nat.

ord., *Oliveworts* [Oleaceæ]. Linn., 2-*Diandria* 1-*Monogynia*.)

Fine hardy shrubs for peat-bogs, in a sheltered situation. Seeds imported, sown in spring; layers made in summer; and grafting on the common ash. Deep, moist, sandy loam. The East Indian species requires the heat of a stove.

C. axillaris (axil-flowering). 7. White. June. E. Ind. 1810.

— *maritima* (sea-side). 10. White. June. N. Amer. 1736.

— *Virginica* (Virginian). 30. White. June. N. Amer. 1736.

— *angustifolia* (narrow-leaved). 30. White. June. N. Amer.

— *latifolia* (broad-leaved). 30. White. June. Carolina.

CHIRITA. (From *cheryta*, the Hindoostanee for the Gentian-plant. Nat. ord., *Gesneriworts* [Gesneraceæ]. Linn., 14-*Didynamia* 2-*Angiospermia*.)

Stove evergreens, except *C. Sine'nsis*. Seeds sown in a hotbed, in spring, and cuttings in March and April, in sandy peat, under a bell-glass. Peat and loam. Summer temp., 55° to 80°; winter, 40° to 45°.

C. Moonii (Mr. Moon's). 2. Pale purple. July. Ceylon. 1847.

— *Sine'nsis* (Chinese). ½. Lilac. July. China. 1843. Greenhouse evergreen.

— *Walkeria* (Mrs. General Walker's). 1½. Pale yellow. Ceylon. 1845.

— *Zeylanica* (Ceylon). 1½. Purple. June. Ceylon. 1845.

CHIRONIA. (A classical name, after *Chiron*, one of the centaurs, fabled to be the father of medicine. Nat. ord., *Gentianworts* [Gentianaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*.)

Greenhouse evergreens, from the Cape of Good Hope. Cuttings in sandy peat, under a bell-glass. Peat, three parts; loam, one part; all fibry, with a little sand and charcoal, and good drainage. Winter temp., 40° to 45°.

C. angustifolia (narrow-leaved). 1. Red. July. 1800.

— *baccifera* (berry-bearing). 2. Yellow. June. 1759.

— *decussata* (cross-leaved). 1½. Red. July. 1789.

— *floribunda* (abundant-flowering). 1. Rose. May. 1842.

— *frutescens* (shrubby). 1½. Red. July. 1756.

— *albiflora* (white-flowered). 1½. White. July. 1756.

— *glutinosa* (clammy). 3. Red, lilac. 1844.

— *jasmindes* (jasmine-like). 2. Purple. May. 1812.

— *linoides* (flax-like). 2. Red. August. 1787.

— *lychnoides* (lychnis-like). 2. Purple. May. 1816.

— *nudicaulis* (naked-stemmed). 1. Purple. July. 1816.

— *peduncularis* (long-flower-stalked). 3½. Purple. July. 1830.

— *serpyllifolia* (wild-thyme-leaved). 1. Yellow. August. 1829.

— *tetragona* (four-angled). 1. Yellow. July. 1824.

CHITONIA. (From *chiton*, a coat of

mail; the seeds, when dry, bearing a rough or scabrous exterior. Nat. ord., *Bean-capers* [Zygophylacæ]. Linn., 10-*Decandria* 1-*Monogynia*.)

Stove evergreens. Cuttings in sand, in heat, in April. Peat and loam. Summer temp., 60° to 80°; winter, 45° to 55°.

C. d'ibicans (white-leaved). 10. White. Mexico. 1815.

— *Fothergilla* (Fothergill's). 20. Purple. S. Amer. 1815.

— *macrophylla* (large-leaved). 10. White. Trinidad. 1820.

— *pyramidalis* (pyramidal). 3. White. July. Trinidad. 1817.

— *Tamonia* (Tamonia). 12. Purple. W. Ind. 1815.

CHIVE OF CIVE (*Allium schænoprasum*) is used as a very superior substitute for young onions in spring salading. A single row, a few yards long, will supply a family.

A light, rich soil is most suitable.

Plant together eight or ten of the offsets of the bulbs, in March or April, in rows ten inches apart, and as many from patch to patch. By autumn they multiply into large-sized bunches, and, if required, may be taken up as soon as the leaves decay, and be stored as a substitute for the onion. The leaves, which are fit for use as long as they remain green, must, when required, be cut down close to the ground, when they will speedily be succeeded by others.

CHLIDA'NTHUS. (From *clideios*, delicate, and *anthos*, a flower. Nat. ord., *Amaryllids* [Amaryllidacæ]. Linn., 6-*Hexandria* 1-*Monogynia*. Allied to *Clinanthus*.)

A half-hardy bulb, with sweet-scented flowers. It requires fertile loam in a warm border, and to be taken up on the approach of frost, and kept dry, in a pot of sand, till April, when its numerous offsets should be removed, to enable the bulb to flower well. Offsets; sandy peat and fibry loam.

C. fragrans (fragrant). 1. Yellow. June. Buenos Ayres. 1820.

CHLOA'NTHES. (From *chloa*, greenish-yellow, and *anthos*, a flower; in reference to its greenish flowers. Nat. ord., *Verbenas* [Verbenacæ]. Linn., 14-*Didynamia* 3-*Angiospermia*. Allied to *Lantana*.)

Greenhouse evergreens, from New Holland. Cuttings of young shoots in sandy soil, under a glass; fibry loam, and turfy, sandy peat. Winter temp., 40° to 45°.

C. glandulosa (glandulous). 2. Green, yellow. July. 1824.

— *rosmarinifolia* (rosemary-leaved). 2. Green, yellow. July. 1823.

— *stæchadis* (stæchas-like). 2. Green, yellow. July. 1822.

CHLO'RA. Yellowwort. (From *chloros*, greenish-yellow. The flowers of *C. perfoliata*, a British plant, are yellow, and turn green when dried. Nat. ord., *Gentianworts* [Gentianacæ]. Linn., 8-*Octandria* 1-*Monogynia*.)

The leaves of these plants are a good substitute for Gentian. Hardy annuals. Seed sown in April, in the open border.

C. imperfoliata (leaf-unstem-pierced). Yellow. June. Italy. 1823.

— *perfoliata* (leaf-stem-pierced). Yellow. June. Britain.

— *serotina* (late-flowering). 1. Yellow. November. South of Europe. 1832.

CHLORIDE OF LIME, or BLEACHING POWDER, is composed of chlorine, 36.23, lime, 36.77. Exposed to the air, it is converted into chalk and muriate of lime, a salt which absorbs moisture from the air very powerfully. By this conversion it becomes a useful addition to soils; and, as it also gives out some chlorine gas, so offensive and destructive to insects, it has been suggested as a useful application to the land at the time of turnip-sowing. It is also useful as a disinfecter, and for sprinkling about stable-floors, to fix the ammoniacal fumes.

CHLOROXYLON. (From *chloros*, greenish-yellow, and *xylon*, wood. Nat. ord., *Cedrelads* [Cedrelacæ]. Linn., 10-*Decandria* 1-*Monogynia*. The Satin-wood is from the trunk, and the wood-oil of India is from the leaves of *C. Swietenia*.)

Stove evergreen tree. Cuttings of ripe shoots in sand, under a glass, and in heat; loam and peat. Summer temp., 60° to 80°; winter, 50° to 55°.

C. Swietenia (Van Swieten's). 50. White. E. Ind. 1820.

CHOCOLATE NUT. *Theobroma*.

CHOISYA. (Named after M. Choisy, a botanist of Geneva. Nat. ord., *Rueworts* [Rutacæ]. Linn., 10-*Decandria* 1-*Monogynia*.)

Stove evergreen, cultivated like *Chloroxylon*.

C. ternata (three-leafted). 6. White. July. Mexico. 1825.

CHOME'LIA. (Named after Dr. Chomel, physician to Louis XV. Nat. ord., *Cinchonads* [Cinchonacæ]. Linn., 4-*Tetrandria* 1-*Monogynia*. Allied to *Ixora*.)

Stove evergreen shrubs, cultivated like *Chloroxylon*.

C. fasciculata (bundle-flowered). 5. White. W. Ind. 1825.

— *spino'sa* (spiny). 12. White. W. Ind. 1793.

CHONEMO'RPHA. (From *chone*, a funnel, and *morpha*, form; the flowers being funnel-form. Nat. ord., *Dogbanes* [Apocy-

naceæ]. Linn., 5-Pentandria 1-Monogynia. Allied to Rhyncospermum.)

Stove evergreen shrub. Cuttings of rather firm young shoots in sand, under a glass, and in heat; peat and loam. Summer temp., 60° to 85°; winter, 55° to 60°.

C. pubescens (downy). White. May. E. Ind. 1822.

CHORE'TIS. (From *choros*, to unite in chorus; this genus being an intermediate link between *Hymenocallis* and *Isme'ne*. Nat. ord., *Amaryllids* [*Amaryllidaceæ*]. Linn., 6-Hexandria 1-Monogynia.)

The bulbs are half-hardy, and require to rest from the end of summer till March. Like the Peruvian Daffodils (*Isme'ne*), they require very light, sandy soil. The flowers are very beautiful—pure white, with a green eye and greenish stripe. Division of bulbs; peat and loam. Summer temp., 60° to 80°; winter, 48° to 85°.

C. Galvestonis (Galveston Bay). 1. White. Texas.

— *glauca* (milky-green). 1. White. July. Mexico. 1837.

CHORISPORA. (From *choris*, separate, and *spora*, a seed; the seeds being divided from each other in the pods. Nat. ord., *Crucifers* [*Brassicaceæ*]. Linn., 15-Tetradynamia. Allied to *Cakile*.)

Hardy annuals. Only one worth notice. Seeds, sown at the end of March; common soil.

C. tenella (slender). $\frac{1}{2}$. Purple. June. Siberia. 1780.

— *arcuata* (bowed). $\frac{1}{2}$. Purple. June. Siberia.

CHOROZEMA. (From *choros*, a dance, and *zema*, a drink. The party who discovered the first of these beautiful flowers, in New Holland, danced for joy at finding fresh water in its neighbourhood. Nat. ord., *Leguminous Plants* [*Fabaceæ*]. Linn., 10-Decandria 1-Monogynia.)

Greenhouse evergreens, from New Holland. Seeds sown in a slight hotbed, in March, give the best plants; cuttings of firm, short side-shoots may be taken off any time before midsummer, and inserted in sand, under a bell-glass; peat, three parts; fibry loam, one part; sand and charcoal, one-half part each. Summer temp., 55° to 70°; winter, 45° to 50°.

C. angustifolia (narrow-leaved). Yellow, red. March. 1830.

— *cordata* (heart-shaped-leaved). 2. Red. April. — *Dicksoni* (Mr. Dickson's). 3. Scarlet, yellow. July. 1836.

— *Henchmanni* (Henchmann's). 2. Scarlet. May. 1824.

— *Hugeli* (Hugel's). 2. Blue. May.

— *ilicifolia* (holly-leaved). 2. Yellow, red. August. 1803.

— *Lawrenceana* (Mrs. Lawrence's). 3. Orange. Spring. 1845.

— *macrophylla* (large-leaved). Red. April.

— *mucronata* (sharp-pointed). 3. Deep orange. Spring. 1845.

— *nanua* (dwarf). $\frac{1}{2}$. Yellow, red. April. 1803.

— *ovata* (egg-shaped). 1. Scarlet. August. 1830.

C. platylobioides (platylobium-like). Yellow. May. 1825.

— *rho'mbea* (diamond-leaved). 2. Yellow. May. 1803.

— *sca'ndens* (climbing). Yellow. March. 1824.

— *Spartio'des* (Spartium-like). $\frac{1}{2}$. Yellow, red. August. 1832.

— *spectabilis* (showy). 2. Orange, red. March. 1840.

— *triangula're* (three-angled). $\frac{3}{4}$. Scarlet. April. 1830.

— *va'ria* (various-leaved). 4. Orange, red. March. 1839.

— *grandiflora* (large-flowered). 3. Orange. Spring. 1844.

CHRISTMAS ROSE. *Hellebo'rus ni'ger*.

CHRIST'S THORN. *Paliu'rus*.

CHRYSA'NTHEMUM. (From *chrysos*, gold, and *anthos*, a flower. Nat. ord., *Composites* [*Asteraceæ*]. Linn., 19-Syn-genesia 2-Superflua.)

Hardy plants. Annuals by seed sown in the border, in April, or in a slight hotbed, at the end of March, and transplanted; perennial herbaceous species by seed and division of roots, in autumn or spring; the garden-varieties of *Sine'nsis* by divisions and cuttings, in March and April, giving them light, rich soil; and to do these full justice, planting them against a wall, or blooming them under glass, giving plenty of manure-water after the bloom-buds appear. The shrubby kinds are increased by cuttings and divisions, and require a little aid in winter, in a frame, cold pit, or cool greenhouse.

C. absinthio'lium (wormwood-leaved). 1. White. Siberia. 1824.

— *Achillea* (milfoil-leaved). 1. White. July. Italy. 1775.

— *anom'atum* (anomalous). 1. White. June. Spain. 1811.

— *arcticum* (arctic). $\frac{1}{2}$. White. July. Kamtschatka. 1801.

— *argenteum* (silver-leaved). 1. White. July. Levant. 1731.

— *atratum* (blackened-leaved). 1. White. July. Austria. 1731.

— *lobatum* (lobed). $\frac{3}{4}$. White. July. Switzerland. 1819.

— *carinatum* (keeled). 2. White, purple. August. Barbary. 1796.

— *coronarium* (garland). 4. Yellow. August. Sicily. 1629.

— *daucifo'lium* (carrot-leaved). 1. White. July. 1820.

— *graminifo'lium* (grass-leaved). 1. White. June. Montpelier. 1739.

— *heterophyllum* (various-leaved). 1. White. July. Switzerland. 1806.

— *Indicum* (Indian). 2. Yellow. September. China.

— *Italicum* (Italian). 2. Pale yellow. June. Italy. 1796.

— *lanceola'tum* (spear-head-leaved). $\frac{1}{2}$. White. June. Hungary. 1817.

— *leuca'nthemum* (white-flowered). 2. White. June. Britain.

— *Mexicanum* (Mexican). 1. White. August. Mexico. 1825.

— *Montpelie'nse* (Montpelier). 1. White. July. Montpelier. 1739.

— *montanum* (mountain). 2. White. June. France. 1759.

— *Mycon'is* (Mycon's). 1. Yellow. July. Italy. 1775.

- C. paludosum* (marsh). 1½. White. June. Barbary. 1810.
 — *perpusillum* (very small). 1. White. June. France. 1825.
 — *pinnatifidum* (leafleted). 3. White. July. Madeira. 1777.
 — *pumilum* (dwarf). ½. White. August. 1806.
 — *radicans* (rooting-branched). 1. White. July. Spain. 1818.
 — *rotundifolium* (round-leaved). 1½. White. June. Hungary. 1817.
 — *Rutheniacum* (Russian). ½. Pink. June. Russia. 1827.
 — *segetum* (corn). 1½. Yellow. July. Britain.
 — *Sineuse* (Chinese). 3. Variegated. October. China. 1764.
 — *sylvestre* (wood). 2. White. June. 1804.
 — *tanacetifolium* (tansy-leaved). 1. White. Asia Minor. 1818.
 — *tripartitum* (three-lobed-leaved). 3. Yellow. October. E. Ind. 1809.

CHRYSANTHEMUM as a Florist's Flower.

— This is the *C. Sineuse* and its varieties.

Propagation by Cuttings.—The best time is the first week in February. Take off the young shoots three inches long, and, with a sharp knife, cut off the lower leaves; insert the cuttings round the edge of a five-inch pot, numbering each kind as they are put in, to prevent mistakes. Use a light, sandy loam, with a thin layer of pure sand on the surface. Give a gentle watering, to settle the earth closely to the cuttings. Place them upon a heated surface of either coal-ashes or river-sand. Cover them with a hand-glass, and they will soon emit roots. When rooted, pot them immediately into small pots, and replace them under the hand-glasses. As soon as the roots reach the sides of the pots, re-pot them immediately. Cramping the roots in small pots is very injurious. Then place them either on a shelf near the glass of a good greenhouse, or, which is better, place them in a cold frame, well protected from frost and damp.

By Layers.—To procure very dwarf plants, as soon as the frosts are fairly passed for the season, plant out in the open air a few old plants in a row, in an open situation. Peg down some of the branches, and, as soon as the flower-buds appear, plunge as many small pots round the plants, filled with light, rich earth, as may be required; place a branch into each pot, and give it a gentle twist; put a short, hooked peg into each pot, catching the branch with the hook; then cover it with half an inch of soil, and in a month it will be rooted. Then cut it off from the parent plant, take up the pots, and keep them in the shade till fairly

established. They may then have another and final potting, and will be neat dwarf-plants to place in front of the taller ones.

By Seeds.—The seed must be saved as soon as it is ripe, and only from such as are of a fine shape, and bright, clear colour. Sow the seeds in February, very slightly covered with soil, finely sifted, in shallow, wide pots. Place them in a gentle heat, giving very gentle waterings, when dry, with a fine-rosed watering-pot. As soon as the seedlings have two or three leaves each, transplant them singly into small pots, keeping them in a temperature of 55° to 60°; re-pot when required. Some of them may flower, if well grown, the same season. Treat them exactly like the old varieties, and they will all flower the second year.

Soil.—As these plants are gross feeders, they require a very rich compost. Half light loam, half decayed dung, with a fourth of peat added, will grow them strong, and flower them well.

Summer Culture commences in April. Such as are intended to bloom in pots should now have large shifts out of their small pots into three sizes larger. For cuttings struck the same season, the blooming-pots should be at least nine inches' diameter, but for plants a year older, they should be twelve inches. At every potting stop all the shoots, to cause them to branch early, and form dwarf, compact bushes. Give up stopping at the last shift, which should not be done later than the middle of June. Tie the branches out, so as to give as much room and air to each as possible, consistent with forming a handsome plant. Thin the buds of such as are intended for exhibition, to cause large flowers. During the whole season of growth give abundance of water. Every week give them one watering with liquid-manure. *Never allow them to flag from the first re-potting up to the finishing bloom.* Water them over head, in hot weather, at least twice a day. The proper situation to place them at this season (from May till they bloom), is on a bed of ashes or gravel, in an open situation. As soon as the buds begin to open, remove them into the greenhouse, giving them as much space as possible, or the lower leaves will drop off. Continue an abundant supply of water till the blooming season is over.

Winter Culture.—When the flowers are

all decayed, cut down the blooming shoots, and place the pots in a cool pit, giving only just water enough to keep the plants alive during the winter; and, as they are nearly hardy, they do not require much protection: a mat or two thrown over the glass in very severe frost will be quite sufficient.

These old plants are the best to plant out in the open border. In the southern counties *Chrysanthemums* bloom very finely, either in the open borders or against a wall or low paling, and, during the months of October and November, make a fine display.

Insects.—The green fly is the most troublesome, and, where it is allowed to prevail greatly, will quite destroy the bloom. It is easily destroyed, in the open air, by dipping the ends of the shoots in tobacco-water, and, in the greenhouse, by filling it completely with the smoke of tobacco.

Diseases.—These are such robust, hardy plants that they are seldom troubled with any diseases. The only one that is dangerous is *mildew* on the leaves, produced by a damp, cold atmosphere before they are brought into the greenhouse. The only remedy is dusting the parts where it appears with flowers of sulphur. Brown's fumigator is an excellent one to apply the sulphur with.

CHRYSE'IS. See ESCHSCHÖLTZIA.

CHRYSOBA'CTRON. (From *chrysos*, gold, and *bactron*, a wand; alluding to the magnificent racemes of *C. Ro'ssii*. Nat. ord., *Lilyworts* [Liliaceæ]. Linn., 6-*Hexandria* 1-*Monogynia*.)

Half-hardy, perhaps hardy, bulbs.

C. Hoo'kerii (Dr. Hooker's). 2. Yellow. Middle Island. 1850.

—*Ro'ssii* (Ross's). 2. Yellow. Lord Auckland's Islands. 1848.

CHRYSOBA'LANUS. Cocoa Plum. (From *chrysos*, gold, and *balanos*, an acorn; in reference to the colour of the drupes, or berries. Nat. ord., *Chrysobalans* [Chrysobalanaceæ]. Linn., 12-*Icosandria* 1-*Monogynia*.)

Layers; also cuttings of half-ripened shoots in sand, under glass. Loam and peat. Common greenhouse and cool stove treatment.

C. Ica'co (Icaico). 15. White. W. Ind. 1752. Stove evergreen.

—*oblongifolius* (oblong-leaved). 3. White. May. Georgia. 1812. Greenhouse evergreen.

CHRYSO'COMA. Goldy-locks. (From *chrysos*, gold, and *kome*, hair; in reference to the yellow florets. Nat. ord., *Composites*

[*Asteraceæ*]. Linn., 10-*Syngenesia* 1-*Æqualis*. Allied to *Solidago*.)

Hardy herbaceous species by divisions, in March. Common soil. Greenhouse species by cuttings of half-ripe shoots in April, under a glass, in sand. Loam and a little peat. Winter temp., 35° to 45°.

HARDY HERBACEOUS.

C. biflora (two-flowered). 3. Blue. August.

Siberia. 1741.

—*dracunculoides* (tarragon-like). 2. Yellow. August. Siberia.

—*linosy'ris* (flax-leaved). 2. Yellow. September. Europe. 1596.

—*nuda'ta* (naked). 2. Yellow. September. Carolina. 1818.

—*villo'sa* (long-haired-leaved). 2. Yellow. August. Hungary. 1799.

—*virga'ta* (twiggy). 1. Yellow. September. N. Amer. 1821.

GREENHOUSE EVERGREENS.

C. cernua (drooping). 4. White. July. Cape of Good Hope. 1712.

—*cilia'ris* (hair-fringed-leaved). 4. White. August. Cape of Good Hope. 1759.

—*comau'rea* (golden-hair). 6. Yellow. July. Cape of Good Hope. 1731.

—*denticula'ta* (tooth-leaved). 4. Yellow. August.

—*ni'cea* (snow-white). 3. Yellow. July. Cape of Good Hope. 1816.

—*pat'ula* (spreading). 3. Yellow. July. Cape of Good Hope. 1810.

—*sca'bra* (rugged). 4. White. August. Cape of Good Hope. 1832.

—*squam'da* (scaly-stalked). 2. Yellow. May. N. S. Wales. 1837. Herbaceous.

CHRYSO'GONUM. (From *chrysos*, gold, and *gonu*, a joint; the golden flowers being borne on the joints. Nat. ord., *Composites* [Asteraceæ]. Linn., 10-*Syngenesia* 1-*Æqualis*. Allied to *Millieria*.)

Hardy herbaceous perennial. Dividing the roots in spring; loam, with a little peat and leaf-mould.

C. Virginia'num (Virginian). 1. Yellow. May. N. Amer.

CHRYSOPHY'LLUM. Star Apple. (From *chrysos*, gold, and *phyllon*, a leaf; referring to the colour of the under side of the leaves. Nat. ord., *Sapotads* [Sapotaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*.)

The fruit of *C. Caini'to* is the Star Apple, an esteemed Indian dessert-fruit. Stove evergreen trees; cuttings in sand, under a glass, and in heat; peat and loam. Summer temp., 60° to 80°; winter, 50° to 55°.

C. angustifo'lium (narrow-leaved). 20. White. W. Ind. 1819.

—*argenteum* (silvery-leaved). 20. White. Martinique. 1758.

—*Caini'to* (Cainito). 50. White. May. W. Ind. 1737.

—*ceruleum* (blue-fruited). 40. White. May. S. Amer. 1737.

—*Jamaice'nsæ* (Jamaica). 40. White. May. Jamaica. 1737.

—*microphy'llum* (small-leaved). 30. White. May. S. Amer. 1800.

- C. gl'abrum* (smooth). 15. White. Martinique. 1823.
 — *macrophyllum* (large-leaved). 100. White. Sierra Leone. 1824.
 — *monopreyneum* (one-stoned). 30. Brown. W. Ind. 1812.

CHRYSO'PSIS. (From *chrysos*, gold, and *opsis*, a face. Nat. ord., *Compositæ* [*Asteraceæ*]. Linn., 19-Syngenesia 1-Æqualis.)

A strong, coarse, hardy herbaceous perennial for a shrubbery, and will grow in any common soil; divisions in March.

- C. trichophylla* (hairy-leaved). Yellow. June. N. Amer. 1827.

CHRYSORRHO'E. (From *chrysos*, gold, and *rheo*, to flow; referring to their bright yellow or golden heads of flowers. Nat. ord., *Fringe-myrtles* [*Chamælauciacæ*]. Linn., 10-Decandria 1-Monogynia. Allied to *Chamelaucium*.)

Very beautiful little bushes, from New Holland. They are very scarce, if at all in cultivation. Cuttings of firm young shoots, under a bell-glass, in sandy soil; cold pit or greenhouse, or with a little protection, such as a warm wall, might be tried.

- C. nitens* (shining-flowered). Yellow. May.
C. serrata (saw-leaved). Yellow. May. 1841.

CHRYSOPL'E'NIUM. Golden Saxifrage. (From *chrysos*, gold, and *splen*, spleen; in reference to the colour of the flowers, and the supposed medicinal qualities of the plant as a slight tonic. Nat. ord., *Saxifragæ* [*Saxifragacæ*]. Linn., 10-Decandria 2-Digynia.)

Hardy herbaceous perennials. Dividing the roots; moist situation; common soil.

- C. alternifolium* (alternate-leaved). 1. Yellow. April. Britain.
 — *Nepalense* (Nepaul). 1. Yellow. April. Nepaul. 1820.
 — *oppositifolium* (opposite-leaved). Yellow. April. Britain.

CHRYSOSTE'MMA. (From *chrysos*, gold, and *stemma*, a crown; the yellow flowers. Nat. ord., *Compositæ* [*Asteraceæ*]. Linn., 19-Syngenesia 3-Frustranea. Allied to *Rudbeckia*.)

Hardy herbaceous perennial. Division of the roots, and seed; common, light soil.

- C. tripteris* (three-winged). 6. Yellow. August. N. Amer. 1837.

CHYMOCA'RPUS. (Better known as *Tropæolum pentaphyllum* of "THE COTTAGE GARDENER;" but the genus is acknowledged by botanists, and the meaning of the name is juicy-fruited, in contradistinction to the hard, dry fruit of the *Nasturtium*. It is derived from *chymos*, juice, and *carpos*, a fruit.)

Greenhouse perennial climber. Seeds in a slight hotbed; cuttings in sandy soil, under a hand-light, in summer. Sandy loam, with a little peat.

- C. pentaphyllum* (five-leaved). 4. Red, green. August. Buenos Ayres. 1830.

CHY'SIS. (From *chysis*, melting; in reference to the fused appearance of the pollen masses. Nat. ord., *Orchids* [*Orchidaceæ*]. Linn., 20-Gynandria 1-Monandria.)

Stove orchids. Offsets; baskets filled with fibry peat and potsherds, and kept in a cool, moist stove.

- C. aurea* (golden-flowered). 1. Yellow and crimson. May. Venezuela. 1834.
 — *bracteascens* (bracteated). 1. White, yellow. May. Guatemala. 1840.
 — *laevis* (smooth). Cream, yellow. Guatemala.

CIBO'TIUM. (From *kibotion*, a small box; referring to the form of the seed-vessels. Nat. ord., *Ferns* [*Polypodiaceæ*]. Linn., 24-Cryptogamia 1-Filices.)

Division of the roots; peat and loam; a warm greenhouse, or cool stove.

- C. Barometz* (Barometz). 6. Brown, yellow. May. China. 1824. Stove.
 — *Billardiæri* (Billardiæ's). 30. Brown. April. N. Holland. 1824. Greenhouse.
 — *Schiedei* (Schiede's). 6. Brown. Mexico. 1846. Stove.

CIBOUL, or WELSH ONION. (*Allium fistulosum*.) A perennial, never forming any bulb, but sown annually, to be drawn young for salads, &c. Its strong taste renders it greatly inferior to the common onion for this purpose; but, from its extreme hardness, it is good as a winter-standing crop for spring use.

Varieties.—Two varieties are in cultivation, the white and the red.

Cultivation.—It may be sown at all times with the onion, and is similarly cultivated, except that it may be sown thicker, and only thinned as wanted. (See ONION.) The blade usually dies away completely in winter; but fresh ones are thrown out again in February or March.

To obtain Seed.—Plant some of the roots in March, six or eight inches asunder. The first autumn they will produce but little seed; in the second and third, however, it will be produced abundantly. If care is taken to part and transplant the roots every two or three years, they may be multiplied, and will remain productive for many years, and afford much better seed than that from one-year-old roots.

Scallions.—There is good reason for concluding that by a confusion of names, arising from similarity of appearance, this vegetable is the true scallion, whilst the hollow leek of Wales is the true

Welsh onion. At present, all onions that have refused to bulb, but form lengthened necks and strong blades, in spring and summer, are called scallions.

CICCA. (Named after *Peter Cicca*, a writer of the sixteenth century. Nat. ord., *Spurge-worts* [Euphorbiaceæ]. Linn., 21-Monœcia 4-Tetrandria. Allied to *Phyllanthus*.)

The milky juice of many of the Spurge-worts is poisonous; yet the succulent fruit of *C. di'sticha* is wholesome, and the roots a powerful purgative. Stove tree; cuttings of ripe shoots in sand, under a glass, and in bottom-heat; sandy loam. Summer temp., 60° to 80°; winter, 55° to 60°.

C. di'sticha (two-rowed-leaved). 20. Green. E. Ind. 1796.

CICELY. *Chærophyllum*.

CICHO'RUM. Chicory, or Succory. (An ancient Egyptian name. Nat. ord., *Compositæ* [Asteraceæ]. Linn., 19-Syngenesia 1-Æqualis.)

Hardy salad-plants, of easy culture; seed at different times. See **CINICORY** and **ENDIVE**.

C. endivia (endive). 2. Blue. July. E. Ind. 1548. Annual.

— *intybus* (intybus. *Chicory*). 2. Blue. July. Britain. Perennial.

CIMICIFUGA. Bugwort. (From *cimex*, a bug, and *fugo*, to drive away; from its supposed quality. Nat. ord., *Crowfoots* [Ranunculaceæ]. Linn., 13-Polyandria 5-Pentagynia. Allied to *Actæa*.)

Good old hardy herbaceous plants for borders; seeds, and division of the roots in spring or autumn; common soil.

C. America'na (American). 2. White, yellow. July. Carolina. 1824.

— *cordifo'lia* (heart-leaved). 3. White, yellow. June. N. Amer. 1812.

— *fœtida* (fœtid). 4. Light yellow. June. Siberia. 1777.

— *palma'ta* (hand-leaved). 4. White, yellow. July. N. Amer. 1812.

CINCHO'NA. Peruvian Bark. (Named after the *Countess of Cinchon*, who was cured by this Peruvian Bark. Nat. ord., *Cinchonads* [Cinchonaceæ]. Linn., 5-Pentandria 1-Monogynia.)

The Peruvian bark stands foremost as a febrifuge tonic. Stove evergreens; cuttings of ripe wood in sand, under a bell-glass, in heat; loam and fibry peat, with a little sand and charcoal. Summer temp., 60° to 85°; winter, 55° to 60°.

C. officina'lis (shop). 19. Red. July. Peru. 1810.

— *scabra* (rugged). 6. Red. 1820.

CINERA'RIA. (From *cineres*, ashes; in reference to the grey down covering the surfaces of the leaves. Nat. ord., *Compositæ* [Asteraceæ]. Linn., 19-Syngenesia 2-Superflua.)

Hardy herbaceous species by seed, but chiefly by division of the roots; good, loamy soil, and a

little peat or leaf-mould. The shrubs and under-shrubs, which mostly require a greenhouse or cold pit in winter, by cuttings in sandy soil, under a hand-light. The garden florist varieties see further on.

STOVE EVERGREENS.

C. Aiton'ia'na (Aiton's). 1. Yellow. July.

— *America'na* (American). 6. Yellow. Grenada. 1825.

— *di'scolor* (two-coloured-leaved). 4. White. July. Jamaica. 1804.

— *glabra'ta* (smooth). 2. Yellow. July. Jamaica. 1822.

— *lu'cida* (shining). 2. Yellow. July. W. Ind.

GREENHOUSE EVERGREENS.

C. al'ba (white). 1. White. February. Cape of Good Hope. 1825.

— *angustifo'lia* (narrow-leaved). 2. Yellow. July. Mexico. 1825.

— *aur'ita* (eared). 2. Yellow. June. Madeira. 1827.

— *bi'color* (two-coloured). 2. Yellow. July. Austria.

— *calacali'o'des* (calacia-like). 2. Yellow. July. Cape of Good Hope. 1816.

— *can'e'scens* (hoary). 2. Yellow. June. Cape of Good Hope. 1790.

— *Cauca'sica* (Caucasian). 2. Yellow. July. Cape of Good Hope. 1759. Herbaceous.

— *ela'tior* (taller). 5. White. July.

— *gei'fo'lia* (geum-leaved). 2. Yellow. July. Cape of Good Hope. 1710.

— *gibbo'sa* (swollen). Sicily.

— *humifu'sa* (trailing). 1. Yellow. July. Cape of Good Hope. 1754. Herbaceous.

— *hy'bri'da* (hybrid). 2. Yellow. February.

— *inca'na* (hoary). 3. Yellow. July. Jamaica. 1823.

— *la'tea* (milk-coloured). 3. White. June. 1816.

— *lana'ta* (woolly). 3. Purple. June. Canaries. 1780.

— *loba'ta* (lobed). 3. Yellow. July. Cape of Good Hope. 1774.

— *malva'fo'lia* (mallow-leaved). 2. Yellow. August. Azores. 1777. Herbaceous.

— *multi'fo'ra* (many-flowered). 2. White. July. Teneriffe. 1829.

— *petas'i'tes* (butterbur-leaved). 3. Yellow. February. Mexico. 1812.

— *populifo'lia* (poplar-leaved). 2. Red. July. Canaries. 1780.

— *pra'cox* (early). 2. Yellow. February. Mexico. 1824.

— *pulche'lla* (neat). 2. Purple. February. Canaries. 1818.

— *salicifo'lia* (willow-leaved). 4. Yellow. July. Mexico. 1827.

— *scapi'fo'ra* (scape-flowered). 1. Yellow. July. Cape of Good Hope. 1829.

— *tussilagino'i'des* (coltsfoot-like). 2. Lilac. Autumn. Teneriffe. 1829.

— *vest'i'ta* (clothed). 4. Yellow. Cape of Good Hope. 1824.

— *visco'sa* (clammy). 2. Yellow. July. Cape of Good Hope. 1774. Biennial.

HARDY HERBACEOUS PERENNIALS.

C. alpe'stris (alpine). 1. Yellow. May. Switzerland. 1819.

— *alpi'na* (alpine). 1. Yellow. July. Switzerland. 1819.

— *auranti'aca* (orange). 1. Orange. June. Switzerland. 1819.

— *au'rea* (golden). 3. Yellow. July. Siberia. 1827.

- C. auriculata* (small-eared). 3. Yellow. August. 1831.
 — *Canadensis* (Canadian). 2. Yellow. July. Canada. 1739.
 — *campestris* (wild). 1. Yellow. May. Europe.
 — *crusifolia* (thick-leaved). 1. Yellow. July. Carinthia. 1827.
 — *crispata* (curled). 3. Yellow. July. Switzerland. 1818.
 — *flammea* (flame-coloured). Flame. Dahuria.
 — *gigantea* (gigantic). 2. White. July. Cape Horn. 1801.
 — *integrifolia* (entire-leaved). 1. Yellow. May. England.
 — *lavigata* (smooth-leaved). 1. Yellow. July. Siberia. 1819.
 — *longifolia* (long-leaved). 2. Yellow. July. Austria. 1792.
 — *macrophylla* (large-leaved). 8. Yellow. July. Altai Mountains. 1831.
 — *maritima* (sea. Ragwort). 2. Yellow. August. South Europe. 1633. Evergreen.
 — *palustris* (marsh). 3. Yellow. June. England.
 — *papposa* (downy-crowned). 1. Yellow. July. Galicia. 1821.
 — *parviflora* (small-flowered). 2. Yellow. July. Caucasus. 1820.
 — *racemosa* (racemed). 1. Yellow. July. Caucasus. 1820.
 — *renifolia* (kidney-leaved). 1. Yellow. May. Russia. 1833.
 — *rivularis* (rivulet). 1. Yellow. July. Hungary. 1816.
 — *Sibirica* (Siberian). 4. Yellow. July. Siberia. 1784.
 — *spatulifolia* (spatulate-leaved). 1. Yellow. May. Germany. 1820.
 — *speciosa* (showy). 6. Yellow. June. Siberia. 1815.
 — *Sudetica* (Swiss). 2. Yellow. July. Switzerland. 1819.
 — *thyrsoides* (thyrsae-formed). Russia. 1832.

CINERARIA as a Florist's Flower.—The immense varieties of this flower seem to be the offspring, by various crosses, of *C. mulvafolia*, *la'nata*, *populifolia*, and probably some others.

Propagation by Offsets.—When a Cineraria has done blooming, remove it from the greenhouse, cut down the old flower-stems (excepting such as are intended to save seed from), place the pots out of doors, upon a bed of coal-ashes, in an open situation. Give water moderately in dry weather; and, as soon as the offsets appear, and have attained a leaf or two, take them off with a sharp knife, with the roots uninjured; plant them in small pots, and place them in a cold frame, shading them from the light for a fortnight, and from bright sunshine for another week. They will then be well rooted, and will require a pot a size larger.

By Seed.—Sow the seed as soon as it is ripe in shallow, wide pots, in light, fine soil, and slightly covered. As soon as the seedlings have formed two or three

leaves, prick them out into the same kind of pots, in a somewhat richer soil. They may remain in these pots till they have made some more leaves and fresh roots; then pot them off singly into small pots, shading for a few days. Afterwards, and at the proper time, re-pot them in the same manner as the offsets.

Soil.—The offsets and seedlings having attained the proper size for potting into larger pots, prepare for that operation by mixing and bringing, in a moderately dry state, to the potting-bench, the following compost:—Turfy loam, from an upland pasture, two parts; fibrous peat, one part; decayed leaves, two years old, one part; very rotten cowdung, half a part; and a small addition of river-sand. Prepare, also, a sufficient quantity of broken potsherds, of two sizes; one as large as walnuts, and the other about the size of peas. Have, also, a sufficient number of either new or clean-washed pots, two sizes larger than the plants are in. You are then ready for the operation of potting.

Winter Culture.—By the time the plants, whether offsets or seedlings, are ready for re-potting out of their first-size pots, cold nights will have begun to take place, which brings the time of culture under this head. Bring the plants on to the potting-bench; prepare a pot by placing a large piece of potsherd over the hole at the bottom of the pot, then a layer of the larger size, and a second layer of the smallest size; place a thin layer of the rougher parts of the compost upon them, and as much soil as will be required to keep the plant just level with the rim of the pot; set the plant in the pot, and fill round it with the compost, pressing it gently down. Be careful not to break the leaves, as they are very brittle and tender. When the pot is quite full, give it a gentle knock upon the bench, to finally settle the soil. When all are finished, give a gentle watering, and place them in a cold frame; shade them if they flag from the sun, and water when necessary. The Cineraria is a very fast-rooting plant, and they will soon require another shift. To know when they require it, turn a plant carefully out of its pot, and if the roots have reached the sides of the pots, and through the drainage, re-pot again immediately; for, if the roots once become closely matted, the plants will be crippled in

their growth. The grand object is to keep them growing freely till they make large, broad-leaved plants, in eight-inch pots, before they begin to show their flower-stems. Keep them in the cold frame, or pit, through the winter; only take care to cover them up securely every night, and day also, if the frost is severe. It will be necessary to pack round the sides and ends of the frame or pit with either short litter or dry fern, of sufficient thickness to keep out the severest frost. During this severe weather, it will sometimes be necessary to keep the covering on the glass all the day. It has occurred that the cover has been kept on for a fortnight without any injury; but on all fine days take off the coverings, and give abundance of air; pick off all decaying leaves, should any appear; and only water when absolutely necessary. They grow, and keep healthy, much better in such a situation than in a greenhouse.

Summer Culture.—As soon as the warm, mild days of spring arrive, give the plants their last shift, and, if desirable, remove them into the greenhouse at once, placing them as near the glass as possible. The flower-stems will now be advancing rapidly; and, for some kinds, it will be necessary to use sticks, to open out the heads of bloom, and show them to the best advantage, especially for those intended for exhibition; but all sticks should be removed a day or two before the show, as they are no addition to the beauty of these plants.

Insects.—The great pest of the Cineraria is the *greenfly*; but it may be easily got rid of by smoking with tobacco. Yet it must be carefully applied, as there is no plant so susceptible of injury from a too strong dose of this smoke. Sometimes the *red spider* makes its appearance; and when it does, it will be necessary to dust the leaves with sulphur, which, though it will not kill him, prevents his feeding, and thus starves him to death.

Diseases.—These plants, like all other highly-cultivated ones with soft wood, are subject to go off just on the surface of the soil. The only preventive is plenty of fresh, sweet air, and a judicious application of water, especially during the early part of the year.

CINNAMOMUM. Cinnamon. (From the Arabic name, *kinamon*. Nat. ord.,

Laurels [Lauracæ]. Linn., 9-*Enneandria* 1-*Monogynia*.)

Cassia Bark is obtained from nearly all the species of Cinnamon-trees. Other countries have their Cinnamon-trees, but differing from the true Asiatic Cinnamon. Stove trees. Cuttings of fine shoots in April, in sand, under a glass, and a moist bottom-heat. Peat and loam. Summer temp., 60° to 80°; winter, 55° to 60°.

C. Beilgota (Beilgota). 40. Yellow, green. E. Ind. 1818.

—*cassia* (cassia). 50. Yellow, green. June. Ceylon. 1763.

—*Culita'ban* (Culilaban). 20. Yellow, green. E. Ind. 1823.

—*dulce* (sweet. True Cinnamon). 40. White, yellow. E. Ind. 1820.

—*glau'cum* (milky-green. Camphor-tree). 20. Pale yellow. Japan. 1800.

—*gracile* (slender). 20. Yellow, green. E. Ind. 1820.

—*Malaba'trum* (Malabar-leaf). 20. Yellow, green. E. Ind. 1805.

—*montanum* (mountain). 40. White, green. W. Ind. 1810.

—*nitidum* (shining). 20. White. E. Ind. 1823.

—*verum* (true). 40. Green. July. E. Ind. 1763.

CINQUEFOIL. *Potentilla*.

CION. See SCION.

CIRCEA. Enchanters' Nightshade. (A classical name, after *Circe*, a celebrated enchantress, skilled in poisonous herbs. Nat. ord., *Onagrad* [Onagraceæ]. Linn., 2-*Dianthia* 1-*Monogynia*. Allied to *Lopezia*.)

Hardy perennials. Offsets and divisions. Common garden-soil.

C. alpi'na (alpine). 1. Red. July. Britain.

—*interme'dia* (intermediate). 1. Red. July. Europe. 1821.

—*Lutetia'na* (Parisian. Common). 1. Red. July. Britain.

CIRCUMPOSITION differs from layering, only that in this the shoot to be rooted is bent down to the soil, whilst, in circumposition, the soil is placed in a vessel, and raised to the shoot. There are pots called *layering-pots*, made for this practice, and differing from the common garden-pot only by having a section, about an inch broad, cut through one side, and to the centre of the bottom, for the admission of the shoot or branch. Moisture necessary for favouring the emission of roots is supplied by means of a bottle, from which the bottom is struck off, and the neck furnished with a cork, perforated so as to admit a small pigeon's feather, or bit of wool, to form a syphon, by means of which the moss is kept in a proper state of moisture. Hard-wooded plants are propagated in this way from the middle of May till the end of June; and the branches are sufficiently rooted to be taken off by the end of September.

It is, however, necessary in all cases to ascertain whether the branches are sufficiently rooted previously to their being separated. After being separated, the rooted branch is treated like one layered. See LAYERING.

CIRRHE'A. (From *cirrhus*, a tendril; the rostellum being extended like a small tendril. Nat. ord., *Orchids* [*Orchidaceæ*]. Linn., 20-*Gynandria* 1-*Monandria*.)

Stove orchids. Divisions and offsets. Sphagnum, peat, broken pots, and charcoal, in shallow, open baskets; a high, moist temperature when growing; cooler and dry when at rest. Summer temp., 60° to 90°; winter, 55° to 60°.

- C. alba-viridis* (white-and-green-flowered). White, green. May. Brazil. 1838.
- atro-purpurea* (dark-purple-flowered). Dark purple. April. Mexico. 1838.
- bracteolens* (bracted). White, yellow. July. Brazil.
- fuscolutea* (dusky-yellow). 1. Yellow, green. July. Brazil. Same as *C. saccata*.
- laevis* (smooth). Yellow, brown. July. Brazil.
- Loddigessii* (Loddige's). Yellow, red. May. Brazil. 1827.
- obtusata* (blunt-petaled). 2. Yellow, red. September. Rio Janeiro. 1835.
- pallida* (pale-flowered). Yellowish. August. Brazil. 1837.
- picta* (painted). Purple. May. Brazil. 1830.
- rubra-purpurea* (red-and-purple-flowered). Red, purple. May. Brazil. 1838.
- Russelliana* (Duke of Bedford's). Green, red. May. Brazil. 1837.
- squalens* (squalid). May. Brazil. 1836.
- tristis* (dull-coloured-flowered). 2. Dull purple, red. June. Mexico. 1834.
- viridi-purpurea* (green and purple). 2. Purple, green. June. Brazil.
- Fryana* (Fry's). 2. Green, purple-spotted. July.
- Warreana* (Mr. Warre's). 1. Yellow, red, purple. June. Brazil.

CIRROPE'TALUM. (From *cirrhus*, a tendril, and *petalon*, a flower-leaf; in reference to the strap-shaped petals. Nat. ord., *Orchids* [*Orchidaceæ*]. Linn., 20-*Gynandria* 1-*Monandria*.)

Stove orchids. On blocks of wood. Growing temp., 75° to 85°, and very moist air; rest temp., 60°.

- C. antenniferum* (antennæ-bearing). Brown. Philippines. 1843.
- aurata* (gold-edged). 1. Yellow, crimson. March. Manilla. 1840.
- Blumei* (Blume's). August. Java. 1843.
- candelabrum* (chandelier). Straw, pink, purple. July. Manilla. 1840.
- capitata* (head-flowering). Java. 1843.
- caespitosum* (tufted). Pale yellow. April. Khoossea. 1837.
- Chinense* (Chinese). 1. Purple, yellow. China. 1840.
- compressum* (flattened-stemmed). Java. 1843.
- cornutum* (horned-sepals). 2. Purple. August. Khoossea. 1837.
- Cumii* (Cumings's). Ruby. May. Philippines. 1839.
- elongatum* (elongated). May. Java. 1843.

- C. fimbriatum* (fringed). 1. Green, purple. April. Bombay. 1838.
- maculatum* (spotted). Pale green. May. India. 1841.
- maculosum* (spotted-flowered). Green, purple. E. Ind. 1841.
- Macraei* (M'Rae's). Brown, yellow. April. Ceylon. 1839.
- maxillare* (maxillaria-like). Philippines. 1843.
- Medusæ* (Medusa's head). 1. Spotted, pink. May. Singapore. 1839.
- nodulosum* (nodding-flowered). 1. Pale straw. May. Manilla. 1838.
- picturatum* (pictured). Purple, red. March. E. Ind. 1838.
- Roxburghii* (Roxburgh's). Yellow. May. E. Ind. 1843.
- Thouarsii* (Thouar's). 1. Yellow. July. Society Islands.
- umbellatum* (umbel-flowered). Green, brown. April. Indies. 1838.
- vaginatum* (sheathed). Pale yellow. Singapore. 1843.
- Wallichii* (Wallich's). Brown. March. Nepal. 1837.

CIRSIIUM. (From *kirsos*, a swollen vein; in reference to the effects of being pricked by the spines. Nat. ord., *Composites* [*Asteraceæ*]. Linn., 19-*Syngenesia* 1-*Æqualis*. Allied to the true Thistles.)

Perennials, by division of the roots; annuals and biennials, by seeds. Common soil.

HARDY ANNUALS.

- C. Acarna* (Acarna). 2. Purple. August. Spain. 1683.
- pinnatifidum* (deeply-cut-leaved). 2. Purple. July. Spain. 1820.
- setosum* (bristly). 2. Purple. June. Silesia. 1822.
- stellatum* (starred). 2. Purple. June. Italy. 1665.

HARDY BIENNIALS.

- C. Afrum* (African). 2. Purple. June. Barbary. 1800.
- cernuum* (drooping). 4. Purple. July. Mexico. 1827.
- dealbatum* (whitened). 3. Purple. July. Caucasus. 1820.
- discolor* (two-coloured). 2. Purple. June. N. Amer. 1803.
- eriphorum* (wool-bearing). 4. Purple. July. Britain.
- ferox* (fierce). 3. White. July. South Europe. 1683.
- heteromallum* (one-side-woolly). 3. Purple. July. Nepal. 1820.
- incanum* (hoary). 3. Purple. July. Caucasus. 1820.
- lappaecum* (burdock-like). 4. Purple. July. Caucasus. 1821.
- orientale* (eastern). 3. Purple. July. Asia Minor. 1827.
- paniculatum* (panicled). 2. Purple. June. South Europe. 1781.
- Pazcuarensis* (Pazcuara). 3. Purple. July. Mexico. 1827.
- polyanthemum* (many-flowered). 2. Pink. June. Rome. 1739.
- pungens* (pungent). 3. Purple. July. South Europe. 1820.
- squarrosum* (branching). 3. Purple. July. Siberia. 1818.

C. strigosum (short-bristled). 2. Purple. August. Caucasus. 1825.

HALF-HARDY BIENNIALS.

- C. Cassabonæ* (Cassabona's). 2. Purple. July. South Europe. 1794.
— cichoraceum (succory-like). 3. Purple. August. Naples. 1816.
— diacanthum (two-spined). 3. Purple. July. Syria. 1800.
— Mexicanum (Mexican). 4. White. September. Mexico. 1837.

HARDY HERBACEOUS PERENNIALS.

- C. acaulis* (stemless). 1. Purple. July. Britain.
— altissimum (tallest). 6. Purple. August. N. Amer. 1826.
— ambiguum (doubtful). 2. Purple. July. Mount Cenis. 1820.
— angulatum (angled). 2. Purple. July. Switzerland. 1819.
— arachnoidæum (cobweb-like). 2. Purple. July. Tauria. 1818.
— Bertolii (Bertolini's). 3. Yellow. July. Italy. 1820.
— Bæticum (Bætic). 3. Yellow. July. Spain. 1824.
— Carniolicum (Carniolian). 2. Pale yellow. July. Carniola. 1792.
— ciliatum (hair-fringed). 3. Purple. August. Siberia. 1787.
— cynaroides (artichoke-like). 2. Purple. July. Crete. 1827.
— desertorum (desert). 3. Purple. July. Siberia. 1824.
— echinatum (prickly). 1. Purple. August. Barbary. 1817.
— echinocéphalum (prickly-headed). 2. Purple. July. Caucasus. 1826.
— elatius (taller). 6. Purple. August. 1823.
— fimbriatum (fringed). 4. Purple. July. Caucasus. 1816.
— Forsteri (Forster's). 3½. Crimson. July. England.
— glutinosum (clammy). 2. Pale yellow. July. South Europe. 1816.
— Gmelini (Gmelin's). Purple. August. Russia.
— Halleri (Haller's). 4. Purple. July. South Europe. 1816.
— helenioides (elecampane-like). 6. Purple. July. Siberia. 1804.
— heterophyllum (various-leaved). 2. Purple. July. Britain.
— lacteum (milk-coloured). 2. Pale yellow. July. Switzerland. 1819.
— laniflorum (woolly-flowered). 2. Purple. July. Tauria. 1819.
— Monspessulanum (Montpelier). 2. Purple. June. Montpelier. 1596.
— munitum (armed). 3. Purple. July. Caucasus. 1816.
— muticum (awnless). 2. Purple. July. N. Amer. 1820.
— nudiflorum (naked-flowered). 2. Purple. August. Switzerland. 1817.
— ochroleucum (pale yellow). 2. Pale yellow. July. Switzerland. 1801.
— oleraceum (pot-herb). 3. Pale yellow. July. Europe. 1570.
— orgyæ (six-feet). 6. Purple. July. 1823.
— paludosum (marsh). 3. Purple. July. Switzerland. 1819.
— rigens (stiff. Alpine). 2. Yellow. July. Switzerland. 1775.
— rivularis (brook). 3. White. July. Hungary. 1804.

C. rhizocéphalum (rooting). Pale yellow. Caucasus. 1836.

- rufescens* (rustyish). 3. White. July. Pyrenees. 1816.
— Salisburgense (Salisbury's). 3. Purple. July. Europe. 1816.
— serratuloides (sawwort-like). 3. Purple. August. Siberia. 1752.
— serrulatum (saw-edged). 4. Purple. July. Tauria. 1819.
— spinosissimum (spiniest). 3. Pale yellow. July. Switzerland. 1759.
— strictum (upright). 2. Purple. August. Naples. 1819.
— Syriacum (Syrian). 2. Purple. July. Levant. 1771.
— tuberosum (tuberous). 3. Purple. July. England.
— uliginosum (swamp). 3. Purple. June. Caucasus. 1820.

CISSAMPELOS. Pareira Brava Root. (From *kissos*, ivy, and *ampelos*, a vine; creeps like ivy, and flowers like the vine, on long, hairy racemes. Nat. ord., *Menispermads* [*Menispermaceæ*]. Linn., 22-Diœcia 13-Polyandria.)

Stove twiners. The species from South Africa will do in a warm greenhouse; cuttings of small side-shoots, rather firm, in sand, under a bell-glass, and in bottom-heat; loam and peat. Summer temp., 60° to 80°; winter, 45° to 55°.

- C. Caapeba* (Caapeba). 4. Green. July. S. Amer. 1733.
— Capensis (Cape). 6. Green. Cape of Good Hope. 1775.
— hirsuta (hairy). 6. Yellow, green. Nepal. 1819.
— Mauritia (Mauritian). 6. Yellow, green. Mauritius. 1824.
— microcarpa (small-fruited). 6. Yellow, green. W. Ind. 1823.
— Pareira (Pareira). 6. Green. July. S. Amer. 1733.

CRÆSSUS. (From *kissos*, ivy; in reference to their scrambling habit. Nat. ord., *Vineworts* [*Vitaceæ*]. Linn., 4-Tetrandria 1-Monogynia.)

A genus of stove and greenhouse climbers, having no pretensions to beauty. We introduce it in order to remark, that with the exception of the grape-vine, the plants of this order are singularly deficient in use or beauty. The species require the same treatment as *Cissampelos*.

C. discolor (two-coloured). Greenish-white. September. Java.

CISTERS for the accumulation of rain-water should be formed in connexion with the gutters of the various buildings in the gardens; for no water is equal to it for the artificial supply of moisture to plants.

CRÆTUS. Rock Rose. (From *kiste*, a box; in reference to the form of the seed-vessel. Nat. ord., *Rock Rose* [*Cistaceæ*]. Linn., 12-Icosandria 1-Monogynia.)

C. ladaniferus and *C. Le'don* produce gum ladanum. Seeds sown in April; if under glass, so much the better; layers after the plants have

flowered; and cuttings in May, under a hand-glass; dry soil; all smaller kinds suitable for rock-work; and although hardy in sheltered, dry places, it is safest to propagate a few every season, and give the protection of a cold pit in winter.

- C. acutifolius* (pointed-leaved). 1. White. August. South of Europe.
 — *alboides* (white-leaved). 2. Pale purple. June. Spain. 1640.
 — *asperifolius* (rough-leaved). 2. White. June. South of Europe.
 — *candidissimus* (whitest). 4. Pale red. June. Canaries. 1817.
 — *cane'scens* (hoary-leaved). Purplish. June. South of Europe.
 — *Clusii* (Clusius's). 3. White. June. Spain. 1810.
 — *complicatus* (complicated). 3. Red. June. Spain. 1818.
 — *Corboriensis* (Corbor). 2. White. June. Spain. 1656.
 — *cordifolius* (heart-leaved). 4. White. June. 1800.
 — *Cre'ticus* (Cretan). 2. Purple. July. Levant. 1731.
 — *Tauricus* (Taurian). 2. Purple. June. Tauria. 1817.
 — *crispus* (curled-leaved). 2. Purple. June. Portugal. 1656.
 — *Cupani'dus* (Cupani's). White. June. Sicily.
 — *cymosus* (cyme-flowered). 2. Purple. May.
 — *Cyprius* (Cyprus). 4. June. White. Greece. 1800.
 — *Dunalia'nus* (Dunal's). 2. Purple. May.
 — *Florentinus* (Florentine). 3. White. June. Italy. 1825.
 — *heterophyllus* (various-leaved). 2. Purple. June. Algiers.
 — *hirsutus* (hairy). 2. White. June. Portugal. 1656.
 — *ince'nus* (hoary). 2. Purple. July. South of Europe. 1596.
 — *ladaniferus* (ladanum-bearing. *Bog-cistus*). 4. White. June. Spain. 1629.
 — *albiflorus* (white-flowered. *Gum-cistus*). 4. White. June. Spain.
 — *maculatus* (spotted). 4. White. June. Spain. 1700.
 — *latifolius* (broad-leaved). 4. White. June. Barbary.
 — *laurifolius* (laurel-leaved). 4. White. June. Spain. 1731.
 — *laxus* (loose-flowered). 2. White. June. Spain. 1656.
 — *Le'don* (Ledon). 1. White. June. France. 1730.
 — *longifolius* (long-leaved). 4. White. June. South of Europe. 1800.
 — *Lusitanicus* (Portuguese). 3. Yellow. July. Portugal. 1830.
 — *Montpelien'sis* (Montpelier). 2. White. June. South of Europe. 1656.
 — *oblongifolius* (oblong-leaved). 3. White. June. South of Europe.
 — *obtusifolius* (blunt-leaved). 3. White. June.
 — *parviflorus* (small-flowered). 3. Pale red. June. Crete. 1800.
 — *platysepalus* (broad-sepaled). 4. Red. June.
 — *populifolius* (poplar-leaved). 3. White. May. Spain. 1656.
 — *psilosepalus* (smooth-sepaled). 3. White. June.
 — *purpureus* (purple). 2. Purple. June.
 — *rotundifolius* (round-leaved). 2. Purple. June. South of Europe. 1640.

- C. salicifolius* (sage-leaved). 2. White. June. South of Europe. 1548.
 — *erectusculus* (rather erect). 2. White. June.
 — *ochroleucus* (yellowish-white). 2. Yellowish. June.
 — *sericeus* (silky). 2. Red. June. Spain. 1826.
 — *undulatus* (waved-leaved). 4. White. June. South of Europe. 1803.
 — *vaginatus* (sheathed). 2. Pale purple. April. Teneriffe. 1779.
 — *villo'sus* (long-haired). 3. Purple. June. South of Europe. 1640.

CITHAREXYLUM. Fiddle-wood. (From *kithara*, a lyre, and *xylon*, wood; in reference to the wood being fit for musical instruments. Nat. ord., *Verbenas* [*Verbenaceæ*]. Linn., 14-*Didynamia* 2-*Angiospermia*.)

Stove trees; cuttings of ripe shoots in sand, under a glass, and in bottom-heat; loam and peat. Summer temp., 60° to 80°; winter, 50° to 60°.

- C. caudatum* (tailed). 20. White. Jamaica. 1763.
 — *dentatum* (toothed). 15. E. Ind. 1824.
 — *sericeum* (silky). 15. E. Ind. 1824.
 — *subseriatum* (slightly-toothed). 15. White. W. Ind. 1820.
 — *villo'sum* (long-haired). 10. St. Domingo. 1784.

CITRIOBA'TUS. (From *citros*, a citron, and *batos*, a thorn; called the *Orange Thorn* by the colonists in New Holland, the plant bearing small, orange-coloured fruit. Nat. ord., *Pittosporads* [*Pittosporaceæ*]. Linn., 5-*Pentandria* 1-*Monogynia*.)

Greenhouse evergreens, from New Holland; cuttings in sand, under a bell-glass; sandy, turfy peat, and a little loam and charcoal. Summer temp., 55° to 75°; winter, 45° to 50°.

- C. multiflorus* (many-flowered). 3. November. 1818.
 — *pauciflorus* (few-flowered). 1822.

CITRON. *Citrus me'dica*.

CITRUS. Orange-tree. (Derivation of doubtful origin; supposed to refer to *Citron*, a town in Judæa. Nat. ord., *Citronworts* [*Aurantiacææ*]. Linn., 18-*Polyadelphiu* 2-*Polyandria*.)

Greenhouse evergreen trees.

- C. angulata* (angular-fruited). White. E. Ind.
 — *aurantium* (sweet-orange). 15. White. Asia. 1595.
 — *buzifolia* (box-leaved). 3. White. June. China.
 — *decumana* (huge. *Shaddock*). 15. White. June. India. 1724.
 — *deliciosa* (delicious). White. April. China.
 — *hystris* (porcupine). 15. White. June. E. Ind.
 — *Japo'nica* (Japan-small-fruited). 6. White. June. Japan.
 — *lime'tta* (lime-bergamot). 8. White. June. Asia. 1648.
 — *limonum* (lemon). 15. White. June. Asia. 1648.
 — *Madure'n'sis* (Madura). 10. White. June. China.

- C. margar'ita* (pearl. Sweet lemon). 15. White. June. China.
 — *Me'dica* (Median. Citron). 8. White. June. Asia.
 — *no'bilis* (noble. Mandarin). 15. White. June. China. 1805.
 — — *mi'nor* (smaller). 15. White. June. China. 1805.
 — *spinosi'ssima* (spiniest). 15. White. June. Cayenne.
 — *vulga'ris* (common. Seville). 15. White. June. Asia.
 — — *myrtifo'lia* (myrtle-leaved). 3. White. June. Asia.

Common Orange (*C. auranti'acum*).—The following are esteemed varieties: the China, Blood-red, Sweet-skinned, the Ribbed, Pear-shaped, Tiny-fruited, Fingered, St. Michael's, and Mandarin. The Mandarin and St. Michael's are far superior to the rest for cultivation. The Mandarin is cultivated extensively at Malta, although originally from China: it has a thin rind, and is of very superior flavour. The St. Michael's is also a small orange; but the skin is of a pale yellow; the rind, also, very thin, and the pulp remarkably sweet. The fruit is generally without seed, and the tree is a great bearer.

The Lime (*C. lime'tta*) approaches the Lemon; but the juice is flat, and somewhat bitter.

The Shaddock (*C. decuma'na*) has a large and round fruit; skin yellow, with a white, spongy rind; the pulp sweet and juicy. This has been successfully cultivated, in Devonshire, on the open walls, with protection in winter, but no artificial heat.

The Lemon (*C. limo'num*).—The Continental growers are content to raise these from seed; hence the great difference in quality of the imported fruit.

The Citron (*C. me'dica*) has a rind thick, spongy, and very fragrant; pulp, sub-acid.

Propagation.—All the kinds will propagate freely by cuttings, either of the young shoots, or of those ripier in character. They are prepared in the usual way, and inserted in pots of sand. A close frame, with a bottom-heat of 75°, is necessary; and they must be plunged. They may be made at any period, excepting whilst the plants are growing. Some cultivators put out long, straight pieces of the Citron (which is easiest to propagate), of two or three years' growth; and, as soon as they are rooted, they graft them.

Layers root with facility, but do not make such fine plants.

Grafting.—There are various ways of performing this operation, dependent much on the size and character of the stock. Some graft the young seedlings which were sown in early spring; these, by bottom-heat and high culture, are rendered fit for this operation in about four or five months. No clay is used in this delicate operation, but a little fine moss. Some cut off the head of the stock and crown-graft; others attach the graft to the growing shoot, as in ordinary whip-grafting. *Budding* is also practised by some cultivators.

Inarching has sometimes been practised by inarching several plants on one large stock, in order to form a head speedily.

Stocks.—The Citron has been mostly preferred; the Shaddock, however, makes a robust stock. M'Intosh seems to recommend sowing any ordinary seeds—from such fruit, indeed, as have rotted in the warehouses, from which he has had complete success.

Seeds.—The mode of rearing them thus is simple enough. A light, rich soil and a lively bottom-heat, with a somewhat close atmosphere, will produce plants eighteen inches high in a few months.

Soil and Culture.—All the family love a generous soil. One half a free, yet rich loam, and the other half composed of leaf-mould, old cow-manure, and sandy heath-soil, will grow them in high perfection, adding a little sand and some charred materials: Care must be taken to use the turfy loam in lumps, and to drain well; indeed, all the materials should be somewhat coarse. They require liberal watering; and it must, when given, penetrate the whole mass of soil. They enjoy liquid-manure occasionally. They are not only grown in pots or tubs, but planted out as trees, and against walls and trellises; and they are equally adapted for all these modes of culture. Span-roofed houses would be highly eligible for them as standards; and the sides and ends, being portable, might be removed in summer. The Citron family are impatient of intense sunshine, being, for the most part, natives of woods. A slight amount of shading, therefore, becomes occasionally necessary. The temperature during winter—especially in houses with opaque roofs—must be very moderate: 48° to 50°, by means of fire-

heat, is quite sufficient. As light increases with a returning spring, the thermometer may be permitted to advance a little. In light houses, a thermometer of 50° to 55° will do no injury. Here, however, shading will, at times, be requisite.

Fruit, uses, &c.—Besides forming, in its natural state, one of the adjuncts of the modern dessert, these fruits are used in a variety of forms, both in confectionery, sweetmeats, and liqueurs. Thus, the *Seville*, Bizarade, or Bitter Orange, having a very bitter rind, is used for marmalade, bitter tinctures, candied peel, and for flavouring curaçoa. The Bizarades are the kinds used principally for the production of cut blossoms by the French gardeners. The *Bergamot* has a pear-like fragrance: from this the perfumer obtains his bergamot essences. The *Lime* is used in flavouring punch and confectionery. The *Shaddock* has a cooling and refreshing juice; and the fruit is a splendid addition, in appearance, to the dessert. The *Lemon* is too well known to need comment. The *Citron* is used for sweetmeats, lemonade, and to flavour negus and punch.

Diseases.—We are not aware of anything which may be strictly termed a disease of this genus. A *black fungus* is frequently found on the leaf, having the appearance of soot, and perhaps arguing a corrupt atmosphere, through a too close confinement. This must be cleaned away, by a sponge, with warm water.

Insects.—The *aphis* and the *scale* (coccus) are amongst its principal enemies. The former may at all times be readily destroyed by fumigation; the latter may be rubbed off by means of sponge bound on a stick, frequently dipping the sponge in a liquor consisting of two ounces of soft soap beat up in a gallon of water.

CLADANTHUS. (From *klados*, a branch, and *anthos*, a flower; flowering at the end of the branches. Nat. ord., *Compositæ* [Asteraceæ]. Linn., 19-Syngenesia 2-Superflua. Allied to *Anthemis*.)

The annual from seeds, in April; the evergreen from cuttings, under a glass; common soil.

C. Arabicus (Arabian). 2. Yellow. July. Bombay. 1759. Hardy annual.

—*cane-scens* (whitish). 1. Yellow. June. Canaries. 1829. Greenhouse evergreen.

CLARKIA. (Named after *Captain Clark*. Nat. ord., *Onagradæ* [Onagraceæ]. Linn., 2-Diandria 1-Monogynia.)

Hardy annuals. Seeds in common border, in

March; or, in September, in reserve-garden, protected with a few branches in frosty weather, and transplanted, in spring, in patches, when they will bloom early.

C. elegans (elegant). 2. Rose, purple. July. California. 1832.

—*fl'ore-pl'no* (double-flowered). 1½. Pale rose. September. Gardens. 1827.

—*rhomboid'ea* (diamond-petaled). Purple. June. N. Amer. 1823.

—*gauroi'des* (gaura-like). 1. Pink. August. California. 1835.

—*pulche'lla* (pretty). 2. June. N. Amer. 1826.

—*fl'ore-al'bo* (white-flowered). 2. White. June. N. Amer. 1826.

CLARY. (*Salvia sclarea*.) Its leaves are sometimes used in soups and medicated wines. A very small number of plants is sufficient for a family. Sow early in April, or a month earlier, in any light-soiled border. Thin the plants to two feet apart. The sowing must be annual. Seed may be saved by allowing some plants to run up the next spring. They ripen their seed in September.

CLAU'NA. (Derivation not explained. Nat. ord., *Citronworts* [Aurantiaceæ]. Linn., 10-Decandria 1-Monogynia.)

Stove evergreen. Cuttings of ripe shoots in sand, under a glass, in heat. Loam and peat. Summer temp., 60° to 80°; winter, 50° to 60°.

C. pentaphylla (five-leaved). 20. White. July. Coromandel. 1800.

CLAV'JA. (Named after *Clavijs*, a Spanish naturalist. Nat. ord., *Ardisiads* [Myrsinaceæ]. Linn., 5-Pentandria 1-Monogynia. Allied to *Theophrasta*.)

Stove evergreen trees. Cuttings of half-ripe shoots in sandy loam, with sand above, under a bell-glass, and in bottom-heat; peat and loam. Summer temp., 60° to 85°; winter, 50° to 55°.

C. macrocarpa (large-fruited). 20. White. Peru. 1816.

—*orna'ta* (adorned). 12. Orange. Caraccas. 1826.

CLAY is a constituent of all fertile soils, though in these it rarely exceeds one-sixteenth part, and generally bears a much smaller relative proportion to the other constituents. In its pure state it is known as alumina. It is the best of all additions to light, unretentive soils; for it retains moisture much more powerfully than any other earth. M. Schubler found, that when silicious sand lost eighty-eight parts of moisture, and chalky sand seventy-six, stiff clay, in the same time, lost only thirty-five parts.

Clay soils are the worst that can be for gardens; for there is scarcely one of the crops there cultivated that is not injured by stagnant water, which can scarcely be prevented in clay soils at some seasons; and, in wet weather, clayey soils cannot

be worked, whereas the gardener must be inserting or attending to his crops every day.

For the improvement of clay lands, by rendering their staple less retentive, burning some of their own soil is an efficient application. One hundred tons per acre, for this purpose, are not too many; for a dressing as a manure, thirty tons are a good quantity. *See* PARING.

CLAYING is adding clay to a soil, to render it more retentive.

CLAYTONIA. (Named after John Clayton, who collected plants in America. Nat. ord., Purslanes [Portulacæ]. Linn., 5-Pentandria 1-Monogynia.)

C. perfoliata, a gay little annual, is used as a substitute for purslane in North America. Annuals, in border of sandy loam, or sandy peat, in March and April; tuberous species, by offsets in spring or autumn, and seeds in spring; herbaceous species, by division of the roots; vegetable mould and peaty soil.

HARDY ANNUALS.

- C. Cubensis* (Cuba). ♀. White. May. Cuba. 1829.
- *gypsophiloïdes* (gypsophila-like). ♀. Pink. October. California. 1835.
- *Joanneana* (Joannes's). 1. White. June. Siberia. 1818.
- *perfoliata* (leaf-stem-pierced). 1. White. June. N. Amer. 1794.
- *Sibirica* (Siberian). 1. Red. June. Siberia. 1768.
- *Unalaschkeensis* (Onalashka). 1. White. June. Russia. 1820.

HARDY TUBEROUS-ROOTED.

- C. acutifolia* (pointed-leaved). 2. August. Siberia. 1827.
- *acutifolia* (pointed-petaled). 1. White. May. N. Amer.
- *Californica* (Californian). California. Herbaceous perennial.
- *Caroliniana* (Carolina). 1. Pink. April. N. Amer. 1789.
- *grandiflora* (large-flowered). 1. Pink. April. N. Amer.
- *lanceolata* (spear-head-leaved). 1. White. April. N. Amer. 1812.
- *longifolia* (long-leaved). 1. White. April. N. Amer. 1827.
- *polyphylla* (many-leaved). 1. Pink. April. N. Amer. 1827.
- *Vestiana* (Vest's). 1. Rose. Altai. 1827.
- *Virginiana* (Virginian. Notch-petaled). 1. White. N. Amer. 1740.

CLEISTOMA. (From *kleio*, to close, and *stoma*, a mouth. Nat. ord., Orchids [Orchidacæ]. Linn., 20-Gynandria 1-Monandria. Allied to *Sarcochilus*.)

Stove orchids, except *C. tridentata*; divisions; blocks of wood, with a little sphagnum moss. Summer temp., 60° to 80°; winter, 55° to 60°.

- C. dealbatum* (whitened). Yellow. September. Manilla. 1843.
- *discolor* (two-coloured). Yellow. March. India. 1844.
- *decepiens* (deceiving). Ochre. May. Ceylon. 1843.

C. ionosmum (violet-scented). 2. Yellow. March. Manilla. 1843.

— *latifolium* (broad-leaved). Yellow, red. March. Singapore. 1840.

— *maculosum* (spotted-flowered). Yellow, pink. March. Ceylon. 1839.

— *rosea* (rose-coloured-flowered). Straw-coloured. September. Manilla. 1837.

— *spicata* (spiked). Red, yellow. May. Borneo. 1846.

— *tridentata* (three-toothed). Reddish-white. N. Holland. 1838. Greenhouse.

CLEMATIS. Virgin's Bower. (From *klema*, a vine-branch; in reference to their climbing like a vine. Nat. ord., Crowfoots [Ranunculacæ]. Linn., 13-Polyandria 6-Polygynia.)

Cuttings of firm side-shoots under a hand-light, in summer; layers in September; division of herbaceous kinds as they commence to grow, in spring; light loam, or loam and a little peat. A dry situation suits most of them.

STOVE EVERGREEN CLIMBERS.

- C. Americana* (American). 12. White. S. Amer.
- *Braziliana* (Brazilian). 12. White. Brazil. 1823.
- *Caripensis* (Caripe). 12. White. Trinidad. 1820.
- *dioica* (dioecious). 14. Green. Yellow. May. W. Ind. 1733.
- *grandiflora* (large-flowered). 12. Yellow. green. Sierra Leone. 1823.
- *hedysarifolia* (hedysarum-leaved). White. E. Ind. 1819.
- *smilacifolia* (smilax-leaved). 20. Purple. W. Ind. 1824.

GREENHOUSE CLIMBERS.

- C. aristata* (awned-anthered). 12. Green, yellow. June. N. Holland. 1812. Deciduous.
- *Baleafrica* (Minorea). 12. Yellow, white. February. Minorea. 1793. Half-hardy evergreen.
- *barbellata* (small-bearded). Chocolate and cream. May. Simla.
- *brachyata* (armed). 2. Yellow, green. October. Cape of Good Hope. Evergreen.
- *Chinensis* (Chinese). 12. White. Trinidad. 1820. Half-hardy evergreen.
- *coriacea* (leather-leaved). 12. White. N. Holland. 1821.
- *glycinoides* (glycine-like). 10. White. N. Holland. 1826. Evergreen.
- *graveolens* (strong-smelling). Pale yellow. July. Chinese Tartary. 1845. Half-hardy deciduous.
- *hexasepala* (six-sepaled). 3. Pale green. April. New Zealand. 1844.
- *indivisa* (undivided-leaved). 20. White, cream. April. New Zealand.
- *lobata* (lobed-leaved). 20. White, cream. April. New Zealand. 1847.
- *lineariloba* (narrow-lobed). 4. White. July. Carolina. 1823. Herbaceous perennial.
- *odorata* (fragrant). June. E. Ind. 1831.
- *Zanzibarensis* (Zanzibar). 10. Zanzibar. 1820.

HARDY CLIMBERS AND HERBACEOUS.

- C. angustifolia* (narrow-entire-leaved). 2. White. June. Austria. 1787.
- *cærulea* (sky-blue-flowered). 10. Blue. April. Japan. 1836.
- *grandiflora* (large-flowered). Purple. June. Japan. 1841.

- C. Californica* (Californian). 1840.
 — *campaniflora* (bell-flowered). 6. Purple. July. Spain. 1810.
 — *cirrhopsa* (tendrilled). 12. White, green. April. Spain. 1896.
 — *crispata* (curled-flowered). 6. Pale purple. August. N. Amer. 1726.
 — *cylindrica* (cylindric-flowered). 3. Blue. August. N. Amer. 1820. Herbaceous perennial.
 — *Dahurica* (Dahurian). 12. Yellow, green. September. Dahuria. 1820.
 — *diversifolia* (various-leaved). 4. White. April. Herbaceous perennial.
 — *erecta* (upright). 3. White. July. Austria. 1897.
 — *Hispanica* (Spanish). 3. White. July. Spain. 1800.
 — *flammula* (flame). 20. White. August. France. 1896.
 — *caespitosa* (tufted). 20. White. September. *maritima* (sea). 20. White. May. South of Europe.
 — *rotundifolia* (round-leaved). 20. White. August. France. 1896.
 — *rubella* (reddish-sepaled). 20. Reddish. September.
 — *vulgaris* (common). 20. White. August. France.
 — *florida* (florid). 10. White. June. Japan. 1776.
 — *bicolor* (two-coloured). White, purple.
 — *foe-pieno* (double-flowered). 10. White. June.
 — *Sieboldii* (Siebold's). 10. Purple, green. June. Japan. 1836.
 — *glauca* (milky-green). 12. Pale yellow. April. Siberia.
 — *Grahami* (Graham's). 16. Pale green. July. Mexico. 1846.
 — *integrifolia* (entire-leaved). 2. Blue. July. Hungary. 1896.
 — *elongata* (elongated). 2. Blue. June. Europe.
 — *latifolia* (broad-leaved). Purple. July.
 — *lathyrifolia* (lathyrus-leaved). 4. White. June. 1836. Herbaceous perennial.
 — *Massonia* (Masson's). 12. Cape of Good Hope.
 — *montana* (mountain). 20. White. May. Nepaul. 1831. Deciduous.
 — *grandiflora* (large-flowered). White. May.
 — *Nepalensis* (Nepaul). May. Nepaul. 1835.
 — *ochroleuca* (yellowish-white). 2. Light yellow. June. N. Amer. 1767. Deciduous.
 — *orientalis* (eastern). 8. Yellow, white. August. Levant. 1731. Deciduous.
 — *paniculata* (panicked). 20. White. August. Japan.
 — *pedicellata* (long-flower-stalked). 12. White, green. July. Majorca.
 — *reticulata* (netted). 8. Purple. July. N. Amer. 1812. Deciduous.
 — *semitriloba* (half-three-lobed). 1. White, green. June. Spain.
 — *Simsii* (Sims's). 8. Purple. July. N. Amer. 1812. Deciduous.
 — *triternata* (thrice-three-leafted). 12. White. 1800. Deciduous.
 — *tubulosa* (tubular-flowered). 2. Blue. September. China. 1845. Herbaceous.
 — *viorna* (American Traveller's joy). 12. Purple. August. N. Amer. 1790. Deciduous.
 — *viornoides* (viorna-like). 8. Lilac. August. N. Amer. 1828. Deciduous.
 — *Virginiana* (Virginian). 15. Green. July. N. Amer. 1767. Deciduous.

- C. Virginiana bracteata* (bracted). 15. Greenish-white. June. N. Amer. 1767.
 — *vitellata* (white-vine. Traveller's joy). 20. White. August. England. Deciduous.
 — *integrata* (entire-leaved). 20. White. August. England.
 — *viticella* (vine-bower). 20. Purple. August. Spain. 1859. Deciduous.
 — *caerulea* (blue-flowered). 20. Blue. July. Spain. 1859.
 — *pleina* (double-purple). 20. Purple. August. Spain.
 — *purpurea* (purple-flowered). 20. Purple. July. Spain.
 — *tenuifolia* (slender-leafted). 20. Crimson. June.

CLEOME. (From *kleio*, to shut; in reference to the parts of the flower. Nat. ord., *Capparids* [Capparidaceæ]. Linn., 15-Tetradynamia.)

Those of a shrubby character by cuttings of half-ripe shoots in sand, under a bell-glass; perennial herbaceous species, by division of the plant, and seeds; Indian annual species, by seed sown in a hotbed, and bloomed in the greenhouse, as tender annuals. The European and several Mexican annuals, by seed in a gentle hotbed, to be transferred to the flower-borders in May; rich, light soil.

HARDY ANNUALS:

- C. Arabica* (Arabian). 2. Yellow. June. Arabia. 1794.
 — *Dilleniana* (Dillenius's). 1. White. June. Levant. 1732.
 — *flava* (yellow). Yellow. June. Australia. 1825.
 — *Iberica* (Iberian). 1. White. July. Iberia. 1820.
 — *lutea* (yellow). 1. Yellow. N. Amer. 1840. Herbaceous perennial.
 — *pubescens* (downy). 2. White. July. 1815.
 — *speciosissima* (most showy). Purple. July. Mexico. 1827.
 — *trineurva* (three-nerved). Yellow. Arabia. 1837.
 — *violacea* (violet-coloured). 1. Purple. June. Portugal. 1776.
 — *virgata* (twiggly). 1. White. June. Persia. 1820.

STOVE SHRUBS AND HERBACEOUS.

- C. arboorea* (tree). 8. White. June. Caraccas. 1817. Evergreen.
 — *dendroides* (tree-like). 5. Purple. Brazil. 1828.
 — *droserifolia* (drosera-leaved). Yellow, violet. May. Egypt. 1837. Greenhouse shrub.
 — *gigantea* (gigantic). 6. White. June. S. Amer. 1774.
 — *micrantha* (small-spined). White. June. 1824.
 — *procumbens* (lying-down). Yellow. June. W. Ind. 1798.

STOVE ANNUALS.

- C. aculeata* (prickly). 2. White. June. S. Amer. 1817.
 — *cardinalis* (cardinal-flower-like). 2. Red. July. Mexico. 1823.
 — *diffusa* (spreading). 1. Green. June. Brazil. 1823.
 — *heptaphylla* (seven-leaved). 1. White. June. Jamaica. 1817.
 — *Houstoni* (Houston's). 1. White. June. W. Ind. 1730.
 — *monophylla* (one-leaved). 1. Yellow. June. E. Ind. 1759.
 — *Zeylanica* (Ceylon). 1. Yellow. June. E. Ind. 1759.

- C. polygama* (various-flowered). 2. White. June. W. Ind. 1824.
 — *pu'ngens* (stinging). 2. White. July. W. Ind. 1812. Biennial.
 — *ro'sea* (rosy). 2. Red. June. Brazil. 1825.
 — *spino'sa* (prickly). 2. White. June. W. Ind. 1731. Biennial.

CLERODE'NDRUM. (From *kleros*, chance, and *dendron*, a tree; said to be owing to the uncertainty of the medicinal qualities. Nat. ord., *Verbenas* [Verbenaceæ]. Linn., 11-*Didynamia* 2-*Angiospermia*.)

Seeds sown when ripe, or in the following March, in a hotbed. Cuttings of the firm, short side-shoots, when growth is commencing, in March or April, in sandy peat, under a glass, and in bottom-heat. Loam and peat, with a little charcoal and dried cowdung, assisted with heat, until they show flower; kept cool and dry in winter, and pruned back in spring, that vigorous shoots may be formed. Summer temp., 60° to 65°; winter, 45° to 50°.

GREENHOUSE EVERGREENS.

- C. attenua'tum* (attenuated). 6. N. Holland. 1824.
 — *costa'tum* (ribbed). 6. N. Holland. 1823.
 — *fra'grans* (fragrant). 6. White, red. October. China. 1790.
 — — *flo're-pl'e'no* (double-flowered). 6. White, red. October. China. 1790.
 — *Japo'nicum* (Japan). White. July. Japan. 1823.
 — *li'vidum* (livid). 3. White. November. China. 1824.
 — *tomentosu'm* (thickly-downy). 5. White. April. N. S. Wales. 1794.
 — *tricho'tomau'm* (three-forked). 6. Japan. 1800.

STOVE EVERGREENS.

- C. angustifo'lum* (narrow-leaved). 4. Mauritius. 1824.
 — *Bethunia'nium* (Capt. Bethune's). 10. Scarlet. Borneo. 1847.
 — *boxifo'lum* (box-leaved). 4. White. 1820.
 — *calamito'sum* (calamitous). 4. August. E. Ind. 1823.
 — *capita'tum* (head-flowered). 5. Cream. August. Sierra Leone. 1846.
 — *ce'rnu'm* (drooping). 4. E. Ind. 1823.
 — *coccineu'm* (scarlet). Scarlet. July. E. Ind.
 — *corda'tum* (heart-leaved). 3. White. July. Nepaul. 1826.
 — *Coremandia'nium* (Coromandel). 6. Mauritius. 1823.
 — *denta'tum* (tooth-leaved). White. May. E. Ind. 1826.
 — *Emir'e'nse* (Emire). 3. White. February. Madagascar. 1822.
 — *fa'llas* (deceptive). Scarlet. September.
 — *floribu'ndum* (bundle-flowered). 6. Lilac. July. Madagascar. 1825.
 — *fo'etidum* (fetid). 5. Nepaul. 1820.
 — *fortuna'tum* (fortunate). 6. July. E. Ind. 1784.
 — *glandulo'sum* (glanded). Scarlet. September.
 — *glau'cum* (milky-green). 4. E. Ind. 1825.
 — *hasa'tum* (halberd-leaved). 6. White. June. E. Ind. 1825.
 — *helianthifo'lum* (sun-flower-leaved). 5. E. Ind. 1824.
 — *Acterophy'llum* (various-leaved). 3. White. August. Mauritius. 1805.
 — *Hugel'ii* (Hugel's). 5. Crimson. Sierra Leone, 1842.

- C. ine'rme* (unarmed). 4. White. July. E. Ind. 1692.
 — *infortuna'tum* (unfortunate). 6. E. Ind.
 — *Kampfe'ri* (Kämpfer's). 4. Scarlet. July. S. Amer. 1843.
 — *laurifo'lum* (laurel-leaved). Scarlet. E. Ind.
 — *leuco'scep'tum* (white-sceptred). White. Nepaul. 1826.
 — *ligustri'nium* (privet-leaved). 3. White. September. Mauritius. 1789.
 — *macrophy'llum* (large-leaved). 8. White, blue. July. E. Ind. 1815.
 — *nerifo'lum* (oleander-leaved). White. May. E. Ind. 1824.
 — *nutans* (nodding). 6. White. November. E. Ind. 1825.
 — *odora'tum* (scented). 4. Red. Nepaul. 1823.
 — *panicu'la'tum* (panicked). 6. Scarlet. August. Java. 1809.
 — *phlomo'des* (phlomis-like). 4. White. August. E. Ind. 1820.
 — *pube'scens* (downy). White. July. W. Ind. 1824.
 — *saticifo'lum* (willow-leaved). 4. E. Ind. 1824.
 — *sca'ndens* (climbing). 12. White. July. Guinea. 1822. Climber.
 — *serra'tum* (saw-edged). 6. Nepaul. 1822.
 — *sinua'tum* (wavy-edge-leaved). 3. White. February. Sierra Leone. 1846.
 — *siphona'nthus* (siphon-flowered). 6. White. E. Ind. 1796.
 — *speciosis'simum* (most-showy). Scarlet. August. 1835.
 — *sple'ndens* (shining). 10. Scarlet. June. Sierra Leone. 1840. Climber.
 — *squama'tum* (scaled). 10. Scarlet. August. China. 1790.
 — *ternifo'lum* (three-leaved). 4. Nepaul. 1823.
 — *urticafo'lum* (nettle-leaved). 4. E. Ind. 1824.
 — *verticilla'tum* (whorled-leaved). 6. White. August. Nepaul. 1818.
 — *viola'ceum* (violet-coloured). 4. Violet. 1822.
 — *visco'sum* (clammy). 6. White. July. E. Ind. 1796.
 — *volt'ile* (twining). 6. White. Guinea. 1823. Climber.

CLE'THRA. (From *klethra*, the Greek name of the Alder; alluding to a supposed resemblance between their leaves. Nat. ord., *Heathworts* [Ericaceæ]. Linn., 10-*Decandria* 1-*Monogynia*. Allied to *Andromeda*.)

Cuttings of half-ripe shoots, of the tenderer species, in April, under a bell-glass, and in sand. The North American species are hardy enough for our shrubberies; are propagated by layers in autumn, or by firm cuttings in sand, under a hand-light, in summer; for all, peat is necessary.

HARDY DECIDUOUS SHRUBS.

- C. acumina'ta* (long-pointed-leaved). 10. White. September. Carolina. 1806.
 — *alnifo'lia* (alder-leaved). 4. White. September. N. Amer. 1731.
 — *Mexica'na* (Mexican). 10. White. Mexico. 1840. Evergreen.
 — *na'na* (dwarf). 3. White. August. 1820.
 — *panicula'ta* (panicked). 4. White. September. N. Amer. 1770.
 — *sca'bra* (rough-leaved). 4. White. September. Georgia. 1806.
 — *tomentosa* (downy-leaved). 4. White. September. N. Amer. 1731.

GREENHOUSE EVERGREENS.

- C. arborescens* (tree). 8. White. September. Madeira. 1784.
 ——— *minor* (smaller). 2. White. September. Madeira.
 ——— *variegata* (variegated). 3. White. August. Madeira.
 ——— *ferruginea* (rusty). 4. White. Peru. 1800.
 ——— *quercifolia* (oak-leaved). 10. White. June. Mexico. 1840.
 ——— *tinifolia* (tinus-leaved). 20. White. Jamaica. 1825. Stove.

CLEYE'RA. (Named after Dr. Cleyer, a Dutch botanist. Nat. ord., *Theads* [Ternströmiaceæ]. Linn., 13-Polyandria 1-Monogynia.)

Greenhouse evergreen shrub. Cuttings of half-ripe shoots in sand, under a bell-glass; sandy, fibry peat. Summer temp., 60° to 70°; winter, 45° to 50°.

C. japonica (Japan). 5. Yellowish-white. Japan. 1820.

CLIA'NTHUS. (From *kleios*, glory, and *anthos*, a flower. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 17-Diadelphia 4-Decandria. Allied to *Sutherlandia*.)

The Parrot-Beak plant and the Glory Pea of New Zealand. Half-hardy evergreen shrubs. Cuttings in sandy soil, under a glass, easily; peat and loam, with a little sand or charcoal. Young plants are best grown rapidly, old plants are so subject to red spider; do well in pots, planted out in a conservatory, or against a wall, where a little protection can be given in winter.

C. carneus (flesh-coloured). 6. Flesh. May. Philippines. 1840.

— *punicus* (crimson corolla). 3. Crimson. May. New Zealand. 1832.

CLIDA'NTHUS. (From *clideos*, delicate, and *anthos*, a flower. Nat. ord., *Amaryllids* [Amaryllidaceæ]. Linn., 6-Hexandria 1-Monogynia. Allied to *Pancratium*.)

This bulb increases so rapidly by offsets, and splitting of the old bulb, that it is difficult to keep bulbs of a size to flower. It grows vigorously in a border of fertile loam, in front of a greenhouse, in summer, but is so impatient of wet that it requires to be taken up in the autumn, without destroying the roots, and kept dry, till April, in a pot of sand or light soil. It looks like a yellow *Narcissus*.

C. fragrans (fragrant). Yellow. Buenos Ayres. 1820.

CLIMATE controls the growth of plants most imperatively; and, in the cultivation of his fruits, flowers, and culinary vegetables, it forms the first object of the gardener's inquiry. He must first know the climate of which any given plant is native; and, secondly, the soil which it affects, before he can cultivate it successfully. How all-influential is climate appears from the fact, that different countries, though in the same degrees of

latitude, have often a totally different Flora on soils similar in constitution.

Now the reason for these differences is, that the countries thus contrasted differ in climate; that is, they differ in the intensity and duration of the light and heat they enjoy; they differ in the contrast of their day and night temperatures; they differ in the relative length of the day and night; they differ in the length of their summer and winter, or, which is synonymous, in the relative lengths of their periods of vegetable activity and rest; they differ, also, in the amount of rain which falls, not only annually, but at particular seasons; they differ in having much atmospheric moisture deposited, in the form of rain, or dew, or snow, at the different periods of vegetable activity or rest. Now, whatever these differences are, whatever the peculiarities of a climate from which a plant comes, the gardener cannot cultivate it successfully unless he secures to that plant those climatal differences and peculiarities. We often see long tables of the average monthly temperature of places; but these are useless. They are no guides to the gardener unless they show the average highest and lowest temperatures of each month, as well as the highest and lowest degrees the thermometer is known to reach during the same period.

CLIMBERS are plants which attach themselves to supporters by their natural appendages, as by their tendrils, by their hooks, or by other modes of attachment.

CLINA'NTHUS. See CLITA'NTHUS.

CLINTO'NIA. (Named, by the unfortunate Douglas, after his friend, *De Witt Clinton*, Governor of the state of New York. Nat. ord., a section of *Lobelias* [Lobeliaceæ]. Linn., 16-Monadelphina 2-Pentandria.)

Hardy annuals, from Columbia. Seeds, in well-pulverised, rather light soil, in April; or in a slight hotbed, in March, and planted out.

C. elegans (elegant). 1. Blue. July. 1827.
 — *pulchella* (pretty). 1. Blue, white. August. 1831.

CLIOCO'CCA. (From *kleio*, to close, and *kokkos* a berry. Nat. ord., *Flaxworts* [Linaceæ]. Linn., 5-Pentandria 5-Pentagynia. Allied to *Linum*.)

Hardy herbaceous perennial. Seeds sown as directed for *Clintonia*, and by divisions; light loam, and a little peat.

C. tenuifolia (slender-leaved). 4. Purple. July. Australia. 1837.

CLIPPING hedges should be confined to those of the commonest and hardiest varieties of shrubs, as those of hawthorn and privet; for the bruising and mangling of the branches which accompany this operation are very injurious to evergreens, as the laurels and holly. Those are always much better kept in order, and within bounds, by the knife. In clipping, many of the leaves of those are cut in half; and their decayed edges are very unsightly. Clipping of deciduous hedges is most advantageously performed in the spring and early summer. A multitude of shoots are then induced, which secure that chief desideratum in hedges—thickness and closeness of texture.

CLISIOCAMPA NEUSTRIA. The Lackey, or Barred-Tree Lackey Moth. "The eggs of this insect, in winter, may be detected easily, in broad bands, round the twigs of our pear, apple, and other trees. They are arranged with such admirable art, that they seem set by the skilful hands of the jeweller (see the annexed drawing). Each bracelet, as the French



gardeners call it, contains from two hundred to three hundred eggs, fastened by their ends, in a series of from fifteen to seventeen close, spiral circles, round the twig. The spaces between the eggs are filled up with a tenacious, brown gum, which protects them from inclement weather, as well as from all attacks except those of man. The eggs thus placed look like a ring of seed-lac; and we think its name may have been thence derived. They are easily crushed by the gardener's knife. The caterpillars—striped lengthwise, blue, red, and yellow, slightly hairy, and with a white line down the back—appear from these eggs in the April or May following. They congregate early in the morning, or during rain, in large nests, at the forks of the small branches,

and are then easily crushed. They enter the chrysalis state at the end of June, and then they are to be found in cocoons, or oval webs, powdered with white or yellowish dust, between two leaves, &c. The chrysalis, or pupa, is longish, and dark brown, in which state it remains for three weeks or a month. In July the moth appears; its colour is light-yellow or reddish-yellow-ochre. The upper wings have a darker band across their middle, which band is bordered by two light cross-lines; the fringes of the wings are whitish, spotted with brown; the lower wings are of a uniform brownish or light-yellow colour. The male is readily known from the female by his comb-like (pectinated) antennæ (feelers) and thinner body. The insect flies only at night, and, consequently, is rarely seen. The caterpillars often appear in considerable numbers, and do not confine their ravages to fruit-trees, but attack many others; such as beeches, elms, poplars, oaks, and even pines. In May, when the caterpillars are living in society, the nests containing them should be collected and destroyed. Care must be taken when collecting the nest; for, if the caterpillars are much disturbed, they let themselves down to the ground by means of a thin, silken thread, and escape. In July their cocoons should be looked for on the trees, in the roofs of sheds, in hedges, and even on the tops of walls."—*The Cottage Gardener*, i. 207.

CLITANTHUS. (From *klitus*, a mountainous declivity, and *anthos*, a flower. Nat. ord., *Amaryllids* [*Amaryllidaceæ*]. Linn., 6-*Hexandria* 1-*Monogynia*. Allied to *Urceolina*.)

Natives of Lima. They will grow and flower in an open, warm border, to be taken up on the approach of frost, and kept dry through the winter, and are readily increased by offsets from the old bulbs. There are believed to be three species: *humilis* (humble), *lu'tea* (yellow), and *Macleania* (Maclean's); but little is known about them.

CLITORIA. (From *kleio*, to shut up; in reference to its seeding within the flower long before the flower drops off. Nat. ord., *Leguminous Plants* [*Fabacæ*]. Linn., 17-*Diadelphia* 4-*Decandria*. Allied to *Phaseolus*.)

Stove evergreen twiner, except where otherwise mentioned. Cuttings of stubby side-shoots in heat, in sandy soil, under a bell-glass; and seeds, when procurable; sandy peat and fibry loam, with sand and charcoal. Summer temp., 60° to 85°; winter, 50° to 55°.

C. arbore'scens (tree-like). 8. Pink. August. Trinidad. 1804. Shrub.

- C. Berteriana* (Bertera's). Yellow. June. St. Domingo. 1824. Trailing annual.
— Brazili'na (Brazilian). 4. Pink. July. Brazil. 1759.
— coccinea (scarlet). 4. Scarlet. July. Brazil. 1820.
— erecta (upright). 3. Amer. 1822.
— formosa (beautiful). 3. Pink. July. Orinoco. 1823.
— fulgens (bright-flowered). Scarlet. May. Brazil. 1840.
— gracilis (slender). 2. Blue. July. S. Amer. 1824.
— heterophylla (various-leaved). 1. Blue. July. E. Ind. 1812.
— lasi'via (wanton). 4. July. Madagascar. 1826.
— Maria'na (Maryland). 3. Blue. August. N. Amer. 1759. Deciduous half-hardy.
— Mexica'na (Mexican). 3. Purple. October. N. Amer. 1759. Greenhouse.
— Plumie'ri (Plumier's). 6. White, red. October. W. Ind.
— ternate'a (three-leafted). 4. Blue. July. E. Ind. 1739.
— — a'ba (white). White. May. E. Ind.
— caerule'a (sky-blue). Blue. May. E. Ind.
— — ma'ior (larger-flowered). 4. Bright brown. August. Sydney. 1845. Greenhouse.
— Virginia'na (Virginian). 6. Purplish. July. 1732. Greenhouse.

CLIVIA. (Named after the *Duchess of Northumberland*, a member of the Clive family. Nat. ord., *Amaryllids* [*Amaryllidaceæ*]. Linn., 6-*Hexandria* 1-*Monogynia*.)

The affinity of this plant puzzled many. Dr. Lindley puts it now in the *Aloe* section of the order. Greenhouse bulbs. Divisions and seeds; a high temperature, and plenty of moisture, when growing; cooler and drier when at rest; rich, sandy loam. Summer temp., 60° to 80°; winter, 48° to 55°.

C. nobilis (noble). 2. Red, yellow. July. Cape of Good Hope. 1823.

CLOUDBERRY. *Rubus chamæmorus*.

CLOVE. *Dianthus caryophyllus*.

CLOVE-TREE. *Caryophyllus*.

CLOWE'SIA. (Named after the late Rev. J. Clowes, a great orchid-grower near Manchester. Nat. ord., *Orchids* [*Orchidaceæ*]. Linn., 20-*Gynandria* 1-*Monandria*. Allied to *Cynoches*.)

Stove orchid. Division; peat and loam, with charcoal. Summer temp., 60° to 80°; winter, 50° to 60°.

C. rosea (rosy). 3. White, pink. Brazil.

CLUB-MOSS. *Lycopodium*.

CLUB-ROOT. See AMBURY.

CLUMPS, when close, are sometimes called *Thickets*, and, when open, *Groups of Trees*. They differ only in extent from a wood, if they are close, or from a grove, if they are open. They are small woods and small groves, governed by the same principles as the larger, after allowances made for their dimensions.

But, besides the properties they may have in common with woods, or with groves, they have others peculiar to themselves. They are either independent or relative. When independent, their beauty, as single objects, is solely to be attended to; when relative, the beauty of the individuals must be sacrificed to the effect of the whole, which is the greater consideration. The least clump that can be is of two trees; and the best effect they can have is, that their heads, united, should appear one large tree. Two, therefore, of different species, or seven or eight of such shapes as do not easily join, can hardly be a beautiful group, especially if it have a tendency to a circular form.

A peculiarity of clumps is the facility with which they admit a mixture of trees and of shrubs, of wood and of grove; in short, of every species of plantation. None are more beautiful than those which are so composed. Such compositions are, however, more proper in compact than in straggling clumps; they are most agreeable when they form one mass. If the transitions from very lofty to very humble growths, from thicket to open plantations, be frequent and sudden, the disorder is more suited to rude than to elegant scenes.

The occasions on which independent clumps may be applied are many. They are often desirable as beautiful objects in themselves; they are sometimes necessary to break an extent of lawn, or a continued line, whether of ground, or of plantation; but, on all occasions, a jealousy of art constantly attends them, which irregularity in their figure will not always alone remove. Though elevations show them to advantage, yet a hillock evidently thrown up on purpose to be crowned with a clump is artificial to a degree of disgust. Some of the trees should, therefore, be planted on the sides, to take off that appearance. The same expedient may be applied to clumps placed on the brow of a hill, to interrupt its sameness: they will have less ostentation of design if they are, in part, carried down either declivity.

A line of clumps, if the intervals be closed by others beyond them, has the appearance of a wood, or of a grove; and, in one respect, the semblance has an advantage over the reality in different points of view. The relations between the clumps are changed; and a variety of

forms is produced, which no continued wood or grove, however broken, can furnish. These forms cannot all be equally agreeable, and too anxious a solicitude to make them everywhere pleasing may, perhaps, prevent their being ever beautiful.

The effect must often be left to chance; but it should be studiously consulted from a few principal points of view; and it is easy to make any recess, any prominence, any figure in the outline, by clumps thus advancing before, or retiring behind one another.—*Wheateley*.

CLU'SIA. Balsam-tree. (Named after *C. de l'Ecluse*, a French botanist. Nat. ord., *Guttifers* [Clusiaceæ]. Linn., 23-*Polygamia* 1-*Monœcia*.)

Stove evergreen trees; cuttings of half-ripe shoots in sand, under a glass, and with good bottom-heat; rich, sandy loam. Summer temp., 60° to 85°; winter, 50° to 55°.

C. alba (white-flowered). 80. White. S. Amer. 1752.

— *flava* (yellow-flowered). 80. Yellow. Jamaica. 1759.

— *rosea* (rose-coloured). 30. Red. July. Carolina. 1692.

— *tetrandria* (four-stamened). White. S. Amer. 1820.

— *venosa* (veiny-leaved). White. S. Amer. 1733.

CLUY'TIA. (Named after *Cluyt*, a professor of botany at Leyden. Nat. ord., *Euphorbiads* [Euphorbiaceæ]. Linn., 22-*Diœcia* 3-*Triandria*.)

Greenhouse evergreen shrubs, except where otherwise specified. Cuttings of small side-shoots; but, if not to be got, points of shoots before they become hard, in sand, over a layer of sandy peat, and covered with a bell-glass; sandy loam and fibry peat. Summer temp., 55° to 75°; winter, 40° to 48°. The East Indian species require more heat in winter.

C. alaternoides (alaternus-like). 2. White. July. Cape of Good Hope. 1692.

— *collina* (hill). 3. White. E. Ind. 1807. Stove.

— *Daphnoides* (Daphne-like). 3. White. May. Cape of Good Hope. 1731.

— *ericoides* (heath-like). 2. White. April. Cape of Good Hope. 1790.

— *heterophylla* (variable-leaved). 3. White. May. Cape of Good Hope. 1818.

— *patula* (spreading). 3. White. E. Ind. 1812. Stove.

— *polifolia* (poly-leaved). 2. White. May. Cape of Good Hope. 1790.

— *polygonoides* (polygonum-like). 2. White. April. Cape of Good Hope. 1790.

— *pubescens* (downy). 3. White. April. Cape of Good Hope. 1800.

— *pulehella* (neat). 2. White. June. Cape of Good Hope. 1739.

— *tenuifolia* (slender-leaved). 3. White. June. Cape of Good Hope. 1817.

— *tomentosa* (thickly-downy). 3. White. April. Cape of Good Hope. 1812.

CNEORUM. Widow's-wail. (An adopted

name from Theophrastus, the derivation not explained. Nat. ord., a section of *Rueworts* [Rutaceæ]. Linn., 3-*Triandria* 1-*Monogynia*.)

Greenhouse evergreen shrubs. Cuttings in sand, under a glass, in April; peat and fibry loam, with a little silver-sand. Winter temp., 40° to 45°.

C. pulverulentum (powdery). 6. Yellow. June. Madeira. 1822.

— *tridacum* (three-grained). 6. Yellow. June. South Europe. 1793.

CNE'STIS. (From *knao*, to scratch; referring to the prickly capsules. Nat. ord., *Connarads* [Connaraceæ]. Linn., 10-*Decandria* 4-*Pentagynia*.)

Stove evergreens. Cuttings of ripe young shoots in sand, under a bell-glass, in sweet bottom-heat. Loam and peat; both fibry, with sand. Summer temp., 60° to 80°; winter, 50° to 60°.

C. corniculata (small-horned). 10. Purple. Guinea. 1793.

— *glabra* (smooth). 10. White, green. Mauritius. 1823.

— *polyphylla* (many-leaved). 6. Purple. Mauritius. 1823.

COAL. See **FUEL**.

COAL-ASHES. See **ASHES**.

COBÆA. (Named after *M. Cobo*, a Spanish botanist. Nat. ord., *Phloxworts* [Polemoniaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*.)

Half-hardy evergreen climbers. Cuttings of firm side-shoots, in summer; but best from seeds sown in a hotbed, in March. Poor, sandy soil, otherwise they will grow too freely to bloom profusely. Greenhouse, or poles, or wall, during summer, in open air.

C. macrostema (long-stamened). 20. Green, yellow. October. Guayaquil. 1839.

— *scandens* (climbing). 20. Purple. August. Mexico. 1792.

— *stipularis* (large-stipuled). 20. Yellow. October. Mexico. 1839.

COBURGIA. (Named after *Prince Leopold of Saxe-Cobourg*, now King of Belgium. Nat. ord., *Amaryllids* [Amaryllidaceæ]. Linn., 6-*Hexandria* 1-*Monogynia*.)

Handsome half-hardy flowering-bulbs, which delight in strong, rich loam, and will grow on a warm, sunny border, in summer; to be taken up on the approach of frost, and kept dry over the winter. Propagated by offsets.

C. coccinea (scarlet). 1. Scarlet. March. Cordilleras. 1839.

— *fulva* (tawny-flowered). 1. Tawny. S. Amer. 1829.

— *humilis* (humble). 1. Orange. March. Cordilleras. 1841.

— *incarnata* (flesh-coloured). 2. Scarlet. August. Quito. 1826.

— *minuta* (vermilion-coloured). 3. Vermilion. April. Peru. 1842.

— *stylota* (long-styled). Orange, red. March. Quito. 1847.

— *trichrota* (three-coloured). 1. Scarlet, white, green. June. Andes. 1837.

C. versicolor (changeable). 2. Red, white, green. June. Lima. 1840.

COCGINE'LLÆ. Lady-Birds. There are about thirty species of this useful and beautiful insect. Let no one destroy a coccinella, for it is one of the greatest destroyers of the plant-louse, or aphid. This is much better appreciated on the Continent than in England; for there the gardeners collect lady-birds, and place them upon rose-trees, &c., infected with aphides.

Cocco'LOBA. Sea-side Grape. (From *kokkos*, a berry, and *lobos*, a lobe; in reference to the fruit. Nat. ord, *Buckwheats* [*Polygonaceæ*]. Linn., 8-*Octandria* 3-*Trigynia*.)

Stove evergreen trees. Cuttings of young, firm shoots, in spring or summer, in sand, under a bell-glass, and in bottom-heat. Summer temp., 60° to 80°; winter, 50° to 55°.

- C. acuminata* (pointed-leaved). 20. White, green. New Grenada. 1820.
 — *excoriata* (barked). 80. White, green. W. Ind. 1733.
 — *flavescens* (pale yellow). 15. White. St. Domingo. 1820.
 — *laurifolia* (laurel-leaved). 20. White, green. August. Caracas. 1822.
 — *longifolia* (long-leaved). 30. White, green. W. Ind. 1810.
 — *microstachya* (small-spiked). 16. White, green. W. Ind. 1824.
 — *nihoa* (white-leaved). 20. White, green. Jamaica. 1818.
 — *obovata* (reversed-egg-leaved). 50. White, green. S. Amer. 1824.
 — *obtusifolia* (blunt-leaved). 20. White, green. Carthage. 1822.
 — *orbiculata* (round-leaved). 15. White, green. S. Amer. 1825.
 — *pubescens* (downy). White, green. W. Ind. 1690.
 — *punctata* (dotted). 15. White, green. W. Ind. 1733.
 — *tenuifolia* (narrow-leaved). 30. White, green. Jamaica. 1820.
 — *uvifera* (grape-bearing). 60. White, green. W. Ind. 1690.

Co'CCULUS. (From *coccus*, cochineal-colour; in reference to the scarlet colour of the fruit. Nat. ord., *Menispermads* [*Menispermaceæ*]. Linn. 22-*Diocia* 6-*Hexandria*.)

Stove evergreen climbers, from the East Indies. The *Co'cculus Indicus* of the druggists' shops is the berry of *C. Plukenetii* and *suberosus*. Cuttings of half-ripened, small side-shoots, in sandy soil, under a glass; peat and loam, both fibry and sandy. Summer temp., 60° to 68°; winter, 50° to 55°.

- C. cordifolius* (heart-leaved). 20. White, green. 1820.
 — *crispus* (curled). 20. White, green. 1822.
 — *incanus* (hoary). 10. White, green. 1820.
 — *laurifolius* (laurel-leaved). 10. White, green. 1816.
 — *orbiculatus* (round-leaved). 6. Green, yellow. 1790.

C. palma'tus (hand-leaved). 10. White, green. 1800.

— *Plukenetii* (Plukenet's). 10. Green, yellow. 1790.

— *rotundifolius* (round-leaved). 20. White, green. 1820.

— *suberosus* (cork-barked). 20. White, green. 1800.

— *tomentosus* (woolly). 10. White, green. 1819.

— *villosus* (long-haired). 6. Green, yellow. 1800.

Coccus. Scale Insect. The species of this family are most usually, but not exclusively, found upon the tenants of our greenhouses and hothouses. The males are active, but the females usually fixed to a part of the plant. The former have wings, and are so small as to require a magnifier to distinguish them clearly: they then appear somewhat like a gnat in form. The females are much larger, and in shape not unlike a bed-bug, but with a scaly skin. When hatching they envelope themselves in a woolly case. The eggs are oval, but no larger than dots. Brushing the stems and branches of trees and shrubs with a hard scrubbing-brush will destroy many of these vermin; and, if spirit of turpentine, with a painter's brush, is applied, so as to visit every cranny of the bark, the application is perfectly effectual. Smaller and more delicate plants in pots may be placed under a sea-kale or other cover, with a little of the spirit in a saucer, and then submitted to a gentle heat: the vapour of the turpentine will destroy the insect in a hour or two. If the first application fails, the second will not fail.

O. adonidum. Mealy Bug. If this insect is attacked the moment the first is seen the pest may be usually avoided. Vines attacked by it should have every branch and stem brushed over sedulously



with a hard brush, and then with a painter's brush as thoroughly painted over with this mixture:—Soft soap, 2 lbs.;

flowers of sulphur, 2 lbs.; tobacco, 1 lb.; and a wine-glass of spirit of turpentine. Mix the sulphur, turpentine, and soap into a paste with warm water; boil the tobacco for an hour in a covered saucepan in some more water, strain it, mix it with the soapy mixture, and then add enough water to make five gallons. More tender plants can only have their stems and leaves sponged with water at a temperature of 115°, frequently, and so long as a single insect can be detected. The Mealy Bug on pine-apples may be destroyed by shutting these up in a frame, over a bed of hot, fermenting horse-dung. Our drawing represents a female magnified, and of its natural size. It is somewhat like a woodlouse in form, but reddish, and covered with a white, mealy powder. The male is slender, gnat-like, with two broad wings, and two brush-like filaments behind.—*The Cottage Gardener*, v. 157.

C. vitis. Vine Scale. It preys upon the stems and branches of the grape-vine both in the open air and under glass. It seems to be the same species which also attacks, occasionally, the peach, nectarine, and plum. It is, says Mr. Curtis, a longish-brown insect, which, in old age, assumes a blackish-brown colour, and becomes hemispherical and wrinkled. The females are shield-like, being convex above, and flat, or concave, below. They are furnished with six small legs, which, when the insect is old, become part of the substance of the body. On the under side of the insect is a sucker, with which it pierces the cuticle of the plants, and extracts their juices. Soon after impregnation the female dies, and her body becomes a protection for the eggs, which are covered with long, white wool, and sometimes completely envelope the shoots of the vines, or of plants growing underneath them. Their powers of propagation are immense; and, where they once become very numerous, they are exceedingly difficult to eradicate. This species belongs to the true genus *Coccus*, characterized by the female having a scale inseparable from her body. While young, both sexes are alike; but the male larvæ produce two-winged insects, with two tail threads. The females have no wings; and their dead bodies, beneath which the young are sheltered, appear as in the annexed woodcut.

Whilst the leaves are on the vine, if

any species of scale appears on its stem and branches, the least offensive remedy is to paint over the whole with a strong solution of gum arabic or starch; allow it to remain on for a week, and then wash it off. But the most effectual remedy is to brush them over thoroughly twice, after an interval of a day, with spirit of turpentine. To prevent the recurrence of the plague, a very effective mode, in autumn, is to scrape away and burn all the rough bark, and then, with a rough brush, to paint over the stem and branches with a creamy mixture, composed of $\frac{1}{2}$ lb. of soft soap, 1 lb. of sulphur, and $\frac{1}{2}$ oz. of black pepper, to four gallons of water; boil together for twenty minutes, and make it thick enough to adhere to the wood like paint. If it does not, thicken it with lime, adding sufficient soot to take off the glaring white colour of the lime.—*Gard. Chron.*, 1842, 840.



C. hesperidum is found in greenhouses, especially on orange-trees. It infests leaves as well as stems.

C. bromeliæ, Pine-Apple Scale, infests that fruit, the *hibiscus*, *justitia*, &c.

C. testudo. Turtle Scale. This is found chiefly on stove plants requiring a high temperature. The scale is oval, very convex, and dark brown. They may be all destroyed by the applications recommended against the preceding species.

A genus of insects closely allied to the *Coccus*, and usually confounded with it, is *Aspidiotus*; and, as all remedial observations applicable to the one are equally applicable to the other, the prevailing kinds of it are here enumerated.

A. nerii, Oleander Scale, is found in our stoves and greenhouses, chiefly on the Oleanders, Palms, Aloes, and Acacias.

A. rosæ, Rose Scale; *A. echinocacti*, Cactus Scale; *A. lauri* Sweet-Bay Scale; infest chiefly the plants by the names of which they are distinguished.

A. ostreaformis, Pear-tree Oyster Scale, is found upon the pear-tree.

COCHLEA'RIA. Scurvy-grass. (From *cochlear*, a spoon; in reference to the concave leaves. Nat. ord., *Crucifers* [Brassicaceæ]. Linn., 15-*Tetradynamia*.)

Seeds, divisions, and cuttings, the first in the open border. They are of little ornamental interest. *Armoracea* is well known as horse-radish.

C. armoracea (horse-radish). 3. White. May. England.

— *Gronlandica* (Greenland). 1. Flesh. May. Scotland.

— *integrifolia* (entire-leaved). White. May. Siberia. 1822.

— *officinalis* (shop. Scurvy-grass). 3. White. May. Britain.

— *Pyrenaica* (Pyrenean). 1. White. April. Pyrenees. 1820.

See HORSE-RADISH AND SCURVY-GRASS.

COCHLOSPE'RMUM. (From *cochlo*, to twist, and *sperma*, seeds. Nat. ord., *Rock-roses* [Cistaceæ]. Linn., 16-*Monadelphia* 6-*Decandria*.)

Stove evergreen trees. Cuttings of ripe shoots in April, in sand, in bottom-heat; peat and loam. Summer temp., 60° to 80°; winter, 50° to 55°.

C. gossypium (cottony). 60. Yellow. May. E. Ind. 1824.

— *serratifolium* (saw-edged-leaved). 60. Yellow. Mexico. 1820.

COCKCHAFER. See MELOLONTA.

COCKSCOMB. See CELO'SIA. *Rhinanthus cri'stagalli* and *Erythrina cri'stagalli* are also so called.

COCKSPUR THORN. *Crataegus cri'stagalli*.

COCOA-NUT-TREE. *Co'cos*.

COCOA PLUM. *Chrysobalanus*.

COCOA ROOTS. *Caladium*.

CO'COS. Cocoa-nut-tree. (From the Portuguese word *coco*, a monkey; in reference to the end of the nut being like a monkey's head. Nat. ord., *Palms* [Palmaeæ]. Linn., 21-*Monœcia* 6-*Hexandria*.)

Seeds in hothead, in spring; rich, loamy soil, somewhat shaded.

C. flexuosa (zigzag). 50. Brazil. 1825.

— *nucifera* (common nut-bearing). 50. Pale green. E. Ind. 1690.

— *plumosa* (feathery). 50. Pale green. Brazil. 1825.

CODLIN MOTH. See CARPOCAPSA.

CODLINS AND CREAM. *Epilobium hirsutum*.

CE'LIA. (The derivation not explained. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-*Gynandria* 1-*Monandria*. Allied to *Ornithidium* and *Maxillaria*.)

Stove orchids. Divisions; sphagnum, peat, and a little charcoal, in a shallow basket. Growing temp., 60° to 90°; rest, 55° to 60°.

C. Baueriana (Bauer's). White. June. Jamaica. 1790.

— *macrostachya* (large-spiked). Red. February. Guatemala. 1840.

CELO'GYNE. (From *koilos*, hollow, and *gyne*, female; in reference to the female organ, or pistil. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-*Gynandria* 1-*Monandria*.)

To cultivate this genus successfully, divide it into two sections:—The first, *C. barbatula*, *cristata*, *Cumingii*, *elata*, *fuliginosa*, *ocellata*, *speciosa*, and some other new species from Borneo not yet bloomed in this country. The second section, *C. Gardneriana*, *maculata*, *præcox*, and *Wallichiana*.

The compost for the first section should be chopped sphagnum, turfy peat, using only the fibrous part, and small potsherds. The season for potting is when they begin to grow, about February. Some of the species have long rhizomes (creeping stems), and would soon run over the edges of the pot. To keep them at home, place an upright block of wood in the centre of the pot; clothe it with moss, and, as the plant advances in growth, train to it, and fasten it with fine copper wire. When growing, they require a liberal amount of water; but the water must not lodge in the hearts of the young leaves. In very hot weather syringe the plants in the morning, and give air, to dry up the extra moisture. Shade from bright sunshine, removing it off by four or five o'clock. The annual growths should be finished early in the autumn, and then the heat and moisture should be reduced; and, when winter approaches, cease watering altogether.

For the second section the soil should be a compost of sandy peat, fibrous loam, and half-decayed leaves, with a small portion of river-sand. Drain moderately well, and place four or five bulbs in a 6-inch pot, excepting *C. Gardneriana*, which is a strong grower, and requires a larger pot, and fewer pseudo-bulbs in it. Pot as soon as the bloom is over, because, as soon as the flowers decay, the young leaves begin immediately to push forth from the same sheath, and will soon begin to put out new roots. Before that takes place the plants should be potted. THIS RULE APPLIES TO ALL ORCHIDS.

Place this section of *Celo'gyne* on a shelf near the glass, in a cool stove. Whilst growing, freely water—moderately, till the leaves are considerably grown, and then abundantly. In potting, place the bulbs just on the surface of the soil.

Resting-period Treatment.—As soon as the pseudo-bulbs are fully formed cease watering, and allow the leaves to turn yellow and die; remove them, and continue the plants in the same situation, keeping them dry and cool. Pay attention to them occasionally, to see that the bulbs continue plump and fresh. Should they appear to shrivel, give a little water, which will cause them to swell again; but be careful not to overdo it, or you may induce them to start prematurely.

C. barbatula (bearded-flowered). White, yellow. December. Khouacca. 1837.

- C. brunnea* (russet). Greenish-yellow. November. E. Ind. 1844.
 — *coronaria* (crowned). Yellowish. Khooseea. 1837.
 — *cristata* (crested-lipped). White, yellow. Nepal. 1837.
 — *Cumingii* (Mr. Cuming's). 2. Creamy-white, yellow. June. Singapore. 1840.
 — *de'cora* (comely). White. March. India. 1837.
 — *ela'ta* (tall). White, yellow. Khooseea. 1837.
 — *fimbriata* (fringed). 1. White, brown. September. Nepal.
 — *flaccida* (drooping). 1. White. January. Nepal.
 — *flavida* (yellowish). Yellow. April. India. 1838.
 — *fuliginosa* (dusky). Cream, brown. June. Khooseea. 1837.
 — *fuscescens* (brownish). Greenish-yellow.
 — *Gardneriana* (Mr. Gardner's). 1. White, 1837. November. Khooseea. 1837.
 — *intermedia* (intermediate). E. Ind. 1840.
 — *interrupta* (interrupted). White. Khooseea. 1837.
 — *longicaulis* (long-stemmed). White, yellow. Khooseea. 1837.
 — *Lo'wii* (Mr. Low's). Buff and brown. Borneo. 1848.
 — *media* (middle). White, yellow. Khooseea. 1837.
 — *maculata* (spotted). White, crimson. Khooseea. 1837.
 — *nigrescens* (blackish). Blackish. March. India. 1838.
 — *nitida* (shining-leaved). 1. Yellow. E. Ind. 1822.
 — *ocellata* (eyed). White, yellow. E. Ind. 1822.
 — *ochracea* (ochre-spotted). 2. White, yellow. April. E. Ind. 1844.
 — *ovalis* (oval). White, brown. October.
 — *plantaginea* (plantain-leaved). Pale yellow. Singapore. 1840.
 — *præcox* (early-flowering). 2. Rose, white. October. Nepal. 1845.
 — *prolifera* (many-offsetted). Yellowish. Khooseea. 1837.
 — *punctulata* (dotted). Yellow. October. Nepal. 1822.
 — *rigida* (stiff). Yellow. Khooseea. 1837.
 — *speciosa* (showy-flowered). 2. Brown, white. September. Java. 1845.
 — *testacea* (light-brown). Brown. May. Singapore. 1842.
 — *trinervis* (three-nerved). White, yellow. February. Singapore.
 — *undulata* (waved-leaved). White. Khooseea. 1837.
 — *Wallichiana* (Wallich's). Rose, white. November. Khooseea. 1837.

COFFEA. Coffee-tree. (From *Coffee*, the name of a province of Narea, in Africa. Nat. ord., *Cinchonads* [Cinchonaceæ]. Linn., 5-Pentandria 1-Monogynia.)

Stove evergreen shrubs. Cuttings of ripe shoots in sand, under a bell-glass, in moist heat; peat and loam. Summer temp., 60° to 85°; winter, 55° to 60°.

- C. Arabica* (Arabian). 20. White. September. Yemen. 1696.
 — *paniculata* (panicked). 8. White. Guiana. 1822.

COGWOOD-TREE. *Laurus chloroxylon*.

CO'IX. Job's Tears. (Adopted name

from Theophrastus. Nat. ord., *Grasses* [Graminaceæ]. Linn., 21-Monæcia 3-Triandria. Allied to Indian Corn.)

Stove perennial grasses. Seeds; divisions; rich, light soil. Summer temp., 60° to 80°; winter, 50° to 55°.

- C. arundinacea* (reed-like). 2. July. Mexico. 1818.
 — *lachryma* (tear). 2. June. E. Ind. 1596.

COKE. See FUEL.

COLLEBETIA. (Named after J. B. Colbert, a French marquis, and patron of botany. Nat. ord., *Dilleniads* [Dilleniaceæ]. Linn., 13-Polyandria 5-Pentagynia. Allied to Dillenia.)

Stove evergreen trees. Cuttings of half-ripened shoots under glass, and in a moist bottom. Summer temp., 60° to 85°; winter, 50° to 55°.

- C. Coromandeliana* (Coromandel). 15. Yellow. April. Coromandel. 1803.
 — *scabrellia* (roughish). 10. Yellow. Nepal. 1820.

CO'LOCHICUM. Meadow Saffron. (Named after *Colchis*, its native country, in Asia Minor. Nat. ord., *Melanths* [Melanthaceæ]. Linn., 6-Hexandria 3-Trigynia.)

Dr. Lindley says, "Few orders of plants are more universally poisonous than this." *C. autumnale*, a gout medicine, is a virulent poison. Hardy herbaceous bulbs. Offsets, planted in common border.

- C. alpinum* (alpine). 2. Purple. July. Apennine. 1820.
 — *arenarium* (sand). 2. Purple. September. Hungary. 1816.
 — *autumnale* (autumnal). Common meadow saffron. 1. Purple. September. Britain.
 — *album* (white-flowered). 2. White. September. Britain.
 — *atro-purpureum* (dark purple). 2. Dark purple. September. Britain.
 — *foliis-variegatis* (variegated-leaved). 2. Purple. September. Britain.
 — *flo're-ple'no* (double-flowered). 2. Purple. September. Britain.
 — *purpureo-striatum* (purple-striped). 2. Purple-striped. September. Britain.
 — *striatum-ple'no* (striped-double). 2. Lilac-striped. September. Britain.
 — *Byzantinum* (Byzantine). 2. Purple. September. Levant. 1629.
 — *Chionense* (Chio). 2. Purple. November. Chio.
 — *croci'florum* (crocus-flowered). 1½. Purple. August. South Europe.
 — *montanum* (mountain). 2. Purple. August. South Europe. 1819.
 — *tessellatum* (chequered). 2. Purple. August. South Europe. 1600.
 — *umbrosum* (shaded). 2. Pink. September. Guinea. 1819.
 — *variegatum* (variegated-flowered). 2. Purple. September. Greece. 1629.

COLDENIA. (Named after C. Colden, a North American botanist. Nat. ord., *Chretiads* [Chretiaceæ]. Linn., 4-Tetrandria 3-Trigynia. Allied to the Heliotrope.)

Stove trailing annual. Seeds sown in a hotbed.

in March, and flowers in the greenhouse, in summer. Light, rich soil.

C. procumbens (lying-down). 2. White. July. E. Ind. 1699.

CO'LEA. (Named after *General Cole*, governor of the Mauritius. Nat. ord., *Crescentiads* [*Crescentiaceæ*]. Linn., 14-*Didynamia 2-Angiospermia*. Allied to the Calabash-tree.)

Stove evergreen shrub. Cuttings of ripe shoots in sand, under a glass, and in moist bottom-heat; peat and loam, both fibry, and mixed with a little sand and charcoal. Summer temp., 60° to 80°; winter, 45° to 55°.

C. floribunda (abundant-flowering). 8. Yellow. August. Madagascar. 1839.

COLEBROO'KIA. (Named after *H. F. Colebrooke*, a botanist. Nat. ord., *Labiates* [*Lamiaceæ*]. Linn., 14-*Didynamia 2-Angiospermia*. Allied to Mint.)

Greenhouse evergreen shrubs. Cuttings of half-ripe shoots, in April or May; sandy peat and fibry loam. Winter temp., 40° to 45°.

C. oppositifolia (opposite-leaved). 3. White. Nepaul. 1820.

— *ternifolia* (three-leafleted-leaved). 3. White. E. Ind. 1823.

COLEONE'MA. (From *koleos*, a sheath, and *nema*, filament; in reference to the way the filaments, or anther-threads, are combined with the base of the flower. Nat. ord., *Rueworts* [*Rutaceæ*]. Linn., 5-*Pentandria 1-Monogynia*. Allied to *Diosma*.)

Greenhouse evergreen shrubs, from Cape of Good Hope. Cuttings of young shoots, getting firm at the base, in sand, under a bell-glass; peat one part, loam two parts, with sand, to keep it open. Winter temp., 40° to 45°.

C. alba (white). 2. White. June. 1798.

— *pulchrum* (beautiful). 6. Rose. May.

— *tenuifolium* (slender-leaved). Rose. March.

COLESAT, or COLESEED. *Bra'ssica campe'stris olei'fera*.

CO'LEUS. (From *koleos*, a sheath; referring to the way that the bottom of the stamens, or anther-threads, are combined. Nat. ord., *Labiates* [*Lamiaceæ*]. Linn., 14-*Didynamia 1-Gymnospermia*. Allied to *Plectranthus*.)

Evergreen shrubs. Cuttings in sand, in heat. Loam and peat. Summer temp. for the stove species, 60° to 80°; winter, 50° to 55°; for the other, common greenhouse temperatures.

C. aromaticus (aromatic). 2. Violet. May. India. 1826. Stove.

— *barbatus* (bearded). 3. Blue. October. Abyssinia. 1806. Stove.

— *Blu'mei* (Blume's). 1½. Purple and white. June. Java.

— *fruticosus* (shrubby). 3. Blue. July. Cape of Good Hope. 1774.

— *Macra'i* (Macrae's). 2½. Purple and white. August. Ceylon. 1852.

COLEWORT, or COLLET. See CABBAGE.

COLLA'NIA. (Derivation unknown. Nat. ord., *Amaryllids* [*Amaryllidaceæ*]. Linn., 6-*Hexandria 1-Monogynia*.)

A splendidly-flowering greenhouse perennial, in the style of *Alströmeria*. Collectors should strive to import these. Division of bulbs and offsets; peat and loam, in frame or greenhouse, or deeply planted out of doors.

C. Andinamarca'na (Andinamarca). 6. Red, green. April. Peru. 1845.

— *dulcis* (sweet-flowered). Pale cream, green. August. Peru. 1845.

COLLE'TIA. (Named after *M. Collet*, a French botanical writer. Nat. ord., *Rhamnads* [*Rhamnaceæ*]. Linn., 5-*Pentandria 1-Monogynia*.)

Stove evergreen shrubs. Cuttings of ripe shoots in sand, under a glass, in spring; sandy loam. Winter temp., 50° to 55°.

C. cruciata (cross-spined). 4. Pale yellow. Chili. 1824.

— *ho'rrida* (horrid). 3. Greenish-white. May. Chili. 1832.

— *serratifolia* (saw-leaved). 2. Yellow. June. Peru. 1822.

— *spino'sa* (spiny). 2. Apetal. June. Peru. 1823.

— *ut'cina* (furze-like). 2. Pale yellow. May. Chili.

COLLIFLOWER. See CAULIFLOWER.

COLLI'NSIA. (Named after *Collins*, a North American naturalist. Nat. ord., *Figuworts* [*Scrophulariaceæ*]. Linn., 14-*Didynamia 2-Angiospermia*.)

Hardy annuals. Seeds in March, in open borders; some in autumn, and slightly protected during winter; or some in a slight hotbed, in March, and transplanted in patches, in April and May; autumn-sown ones will bloom earliest.

C. bicolor (two-coloured). 2. Purple, white. June. California. 1833.

— *grandiflora* (large-flowered). 1. Pink, blue. June. Columbia. 1826.

— *heterophylla* (various-leaved). 2. Lilac. July. Columbia. 1838.

— *parviflora* (small-flowered). 1. Purple, blue. June. Columbia. 1826. Trailer.

— *sparsiflora* (scattered-flowered). 1. Violet. May. California. 1836.

— *tinctoria* (dyer's). 1. Pale pink. May. California. 1848.

— *ve'rna* (spring). 1. Purple, blue. June. N. Amer. 1826.

COLLI'NSO'NIA. (Named after *P. Collinson*, a great promoter of botany. Nat. ord., *Labiates* [*Lamiaceæ*]. Linn., 2-*Diandria 1-Monogynia*. Allied to *Cunila* and *Hyssop*.)

Hardy herbaceous perennials. Division; common soil in moist places.

C. anisata (anise-scented). 3. Yellow. October. Carolina. 1806.

— *Canadensis* (Canadian). 3. Lilac, yellow. September. N. Amer. 1735.

— *cordata* (heart-leaved). 3. Lilac, yellow. September. N. Amer. 1734.

— *ovata* (egg-leaved). 3. Lilac, yellow. September. N. Amer. 1734.

- C. ovalis* (oval-leaved). 2. Yellow. August. Carolina. 1812.
 — *scabriuscula* (roughish). 2. Red, yellow. August. East Florida. 1776. Greenhouse.
 — *tuberosa* (tuberous). 2. Yellow. August. Carolina. 1806.

COLLO'MIA. (From *kolla*, glue; referring to the mucous which surrounds the seeds. Nat. ord., *Phloxworts* [*Polemoniaceæ*]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Gilia*.)

Hardy annuals. The best is *C. coccinea*. Seeds in open border; spring or autumn.

- C. Cavanillesii* (Cavanilles's). 1½. Red, yellow. June. Chili. 1832.
 — *coccinea* (scarlet). Scarlet. July. Chili. 1832.
 — *grandiflora* (large-flowered). 2. Pink. July. Columbia. 1826.
 — *Gilioides* (*Gilia*-like). 1. Pink. August. California. 1833.
 — *glutinosus* (glutinous). Red. September. California. 1833.
 — *gracilis* (slender). ½. Rose. June. N. Amer. 1827.
 — *heterophylla* (various-leaved). 1. Pink. June. Columbia. 1826.
 — *linearis* (narrow-leaved). 1. Red. June. N. Amer. 1826.

COLOGASIA. (From *kolokasia*, the Greek for the root of an Egyptian plant. Nat. ord., *Arads* [*Araceæ*]. Linn., 21-*Monœcia* 7-*Heptandria*. Allied to *Caladium*.)

The Colocasias are remarkable alike for their milky juice and for producing eatable tubers, though belonging to an order which an acrid principle generally pervades. Divisions; peat and loam. Summer temp., 60° to 80°; winter, 50° to 55°; greenhouse not quite so warm.

- C. antiquorum* (ancient). 2. Green. June. Levant. 1551. Tuberous-rooted. Greenhouse.
 — *esculentæ* (eatable-rooted). 2. Green, purple. June. S. Amer. 1739.
 — *odorata* (fragrant). 3. Green, yellow. May. Peru. 1810.

COLOCYNTH. *Cucumis colocynthus*.

COLOGANIA. (Named after *M. Cologan*, who hospitably entertained naturalists visiting Teneriffe. Nat. ord., *Leguminous Plants* [*Fabaceæ*]. Linn., 17-*Diadelphia* 4-*Decandria*. Allied to *Clitoria*.)

Stove evergreen twiners, natives of Mexico; cuttings of half-ripe shoots in sand, under a glass, in April; seeds sown in a hotbed, in March; peat and loam. Summer temp., 60° to 80°; winter, 40° to 45°.

- C. angustifolia* (narrow-leaved). 3. Violet. 1827.
 — *Broussonetii* (Broussonet's). 3. Violet. 1827.
 — *pulchella* (pretty). 3. Rose. September. 1837.

COLPOON-TREE. *Cassia colpoo'n*.

COLT'S-FOOT. *Tussila* go.

COLUBRI'NA. (From *coluber*, a snake; in reference to the twisted stamens. Nat. ord., *Rhamnads* [*Rhamnaceæ*]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Ceanothus*.)

Stove evergreen shrubs; cuttings of young shoots in sand, under a bell-glass; peat and loam. Summer temp., 60° to 80°; winter, 50° to 55°.

- C. Asia'tica* (Asiatic). 12. Pale yellow. July. Ceylon. 1691.
 — *Cube'nsis* (Cuba). 5. Crimson. Cuba. 1820.
 — *ferruginea* (rusty). 20. Green. July. Bahama. 1762.
 — *reclinata* (bent-down). 5. Green. August. Jamaica. 1758.
 — *triflora* (three-flowered). Pale yellow. Mexico. 1826.

COLUMBINE. *Aquile'gia*.

COLUMBO-ROOT. Root of *Co'cculus pal-matus*.

COLU'MNEA. (Named after *Fabius Columna*, an Italian nobleman. Nat. ord., *Gesnerworts* [*Gesneraceæ*]. Linn., 14-*Didynamia* 2-*Angiospermia*. Allied to *Besleria*.)

Stove evergreens. Cuttings in sandy soil and in heat, under a hand-light; peat and loam, with pieces of charcoal and rotten wood, well drained. Summer temp., 60° to 85°; winter, 45° to 55°.

TWINERS.

- C. aureo-nitens* (bright-golden). 1½. Orange, red. September. Columbia. 1843.
 — *Schidia'na* (Schiede's). ½. Orange. June. Mexico. 1840.
 — *scandens* (climbing). 6. Scarlet. August. W. Ind. 1759.

SHRUBS.

- C. crassifolia* (thick-leaved). 1. Rose. October. 1837.
 — *hirsuta* (hairy). 2. Pale purple. September. Jamaica. 1780.
 — *hispida* (bristly). Scarlet. September. Jamaica. 1824.
 — *ru'tilans* (red-leaved). 2. Purple. September. Jamaica. 1823.
 — *splendens* (shining). 2. Scarlet. July. Brazil.
 — *trifoliata* (three-leaved). 3. Blue. September. 1823.
 — *zebrina* (zebra-marked). Pale yellow. Brazil. 1843.

COLU'RIA. (From *kolouros*, deprived of a tail; in reference to the seeds. Nat. ord., *Roseworts* [*Rosaceæ*]. Linn., 12-*Icosandria* 3-*Trigynia*. Allied to *Geum* and *Potentilla*.)

Hardy herbaceous perennial. Divisions; peat and loam.

- C. potentilloides* (potentilla-like). 1. Orange. June. Siberia. 1780.

COLU'TEA. Bladder-senna. (From *koloutea*, a name adopted from Theophrastus. Nat. ord., *Leguminous Plants* [*Fabaceæ*]. Linn., 17-*Diadelphia* 4-*Decandria*. Allied to *Caragana*.)

The leaves of the bladder-senna are used to adulterate the Senna of the druggists. Cuttings planted in the end of summer; seeds sown in spring; common soil.

- C. arbore'scens* (common tree-like). 10. Yellow. July. France. 1548.
 — *crue'nta* (bloody). 4. Scarlet. June. Levant. 1710.

- C. Haleppica* (Aleppo). 6. Yellow. June. Levant. 1752.
 — *media* (intermediate). 10. Orange. July.
 — *Nepalensis* (Nepaul). 5. Yellow. August. Nepaul. 1822.

COLVILLEA. (Named after *Sir Charles Colville*, governor of Mauritius. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 19-*Decandria* 1-*Monogynia*. Allied to *Cæsalpinia*.)

Stove evergreen tree. Cuttings in sand, under a bell-glass, and in bottom-heat; seeds when procurable. Summer temp., 60° to 80°; winter, 45° to 55°.

C. racemosa (large-racemed). 45. Scarlet. April. Madagascar.

COMAROPSIS. (From *komaron*, the *Comarum*, or Marsh Cinquefoil, and *opsis*, like; referring to its strong resemblance to *Comarum*. Nat. ord., *Roseworts* [Rosaceæ]. Linn., 12-*Icosandria* 3-*Trigynia*. Allied to *Geum* and *Potentilla*.)

Hardy North American perennials. Divisions; seeds; common soil.

- C. Doniana* (Don's). 1. Yellow. May. 1800.
 — *fragarioides* (strawberry-like). 1. White. May. 1803.

COMAROSTAPHYLIS. (From *komaros*, the *Arbutus*, and *staphyle*, a grape; referring to the clusters of fruit. Nat. ord., *Heathworts* [Ericaceæ]. Linn., 8-*Octandria* 1-*Monogynia*. Allied to *Arctostaphylos*.)

Pretty bushes from the alpine regions of Guatemala, bearing succulent fruit, which is eatable. Seeds; cuttings under a hand-light, in the beginning of autumn; grafted on the *Arbutus* in spring; loam and peat. If not kept in a cold greenhouse, will require protection out of doors.

- C. arbutoides* (arbutus-like). 6. White. May. 1842.
 — *polifolia* (polium-leaved). Crimson. May. 1840.

COMARUM. Marsh Cinquefoil. (From *komaros*, the *Arbutus*, or Strawberry-tree; in reference to the fruit being like that of the *arbutus*. Nat. ord., *Roseworts* [Rosaceæ]. Linn., 12-*Icosandria* 3-*Polygynia*. Allied to *Potentilla*.)

The leaves of the Marsh Cinquefoil have been used for Peruvian bark. Hardy herbaceous perennials. Divisions; moist places, common soil.

- C. palustre* (marsh). 2. Purple. June. Britain.
 — *variegatum* (striped-leaved). 1½. Purple. July. Britain.

COMBRETUM. (An ancient name adopted from Pliny. Nat. ord., *Myrobalsans* [Combretaceæ]. Linn., 8-*Octandria* 1-*Monogynia*.)

Stove evergreen climbers, except two shrubs. Cuttings of young shoots, or rather, stiffish side-shoots, taken off with a heel, in sand, under a bell-glass, and in bottom-heat; sandy peat and loam, with a little charcoal and broken pots, to keep

the soil open. Summer temp., 60° to 90°; winter, 50° to 60°.

C. elegans (elegant). 15. Scarlet. May. Brazil. 1820.

— *farinosum* (mealy). 10. Orange, red. May. Mexico. 1825.

— *formosum* (handsome). Yellow, red. March. Brazil. 1824.

— *grandiflorum* (large-flowered). 6. Scarlet. May. Sierra Leone. 1824. Shrub.

— *latifolium* (broad-leaved). Scarlet. May. E. Ind. 1844.

— *nanum* (dwarf). 2. White. Nepaul. 1825. Shrub.

— *paniculatum* (panicked). 50. Scarlet. September. Guinea. 1824.

— *Pinceanum* (Pince's). Purple, red. May. Sierra Leone. 1845.

— *racemosum* (racemose). 12. White. May. Benin. 1826.

— *secundum* (side-flowering). 10. Yellow-striped. May. Trinidad. 1818.

— *Wrightianum* (Wright's). 10. India. 1845.

COMESPERMA. (From *kome*, hair, and *sperma*, a seed; in reference to the seeds being enveloped with hairs. Nat. ord., *Milkworts* [Polygalaceæ]. Linn., 16-*Monadelphia* 5-*Octandria*. Allied to *Polygala*.)

Greenhouse evergreens, from Australia. Cuttings of young shoots in April, under a glass; peat and loam. Summer temp., 65° to 80°; winter, 40° to 45°.

C. cordifolia (heart-leaved). 2. Purple. June. 1822.

— *coriifolia* (coris-leaved). Purple. May. 1822.

— *ericina* (heath-like). 3. Purple. June. 1822.

— *gracilis* (slender). 3. Blue. April. 1834.

Twinner.

— *virgata* (twiggly). Purple. May. 1826.

COMPREY. *Symphytum*.

COMMELINA. (Named after *J. and G. Commelin*, Dutch botanists. Nat. ord., *Spiderworts* [Commelinaceæ]. Linn., 3-*Triandria* 1-*Monogynia*.)

The fleshy roots, or rhizomes, of most of the species of *Commelina* are eatable when cooked. Hardy kinds, by sowing in the open ground, whether annual or perennial, and by dividing the roots of the latter. Evergreen trailing kinds, whether greenhouse or stove, chiefly by cuttings in sandy soil, under a hand-light, in a gentle hotbed. All the herbaceous species, whether from tropical regions or New Holland, &c., by seeds, sown in a hotbed, early in spring, pricked off, and potted and planted out towards the end of May, will flourish in the flower-garden, and constitute a pleasing feature until the end of autumn. Before frost, the tuberous kinds should be taken up and kept like dahlias, but not over dry; started a little in spring, in heat, and then transplanted at the end of May, will bloom stronger than the seedlings. The soil should be light and rich, using either rotten dung or leaf-mould, with sandy loam. Summer temp. for stove species, 50° to 75°; winter, 40° to 45°.

ANNUALS.

C. communis (common). 2. Purple, blue. June. N. Amer. 1732. Hardy.

— *cucullata* (hooded). Blue, July. Brazil. 1825. Greenhouse.

HERBACEOUS PERENNIALS.

- C. Caripensis* (Caripe). 2. Blue. June. Trinidad. 1826. Stove.
 — *cæstis* (sky-blue). Blue. June. 1813. Stove.
 — *alba* (white-flowered). 3. White. June.
 — *erecta* (upright). 1. Blue. August. Virginia. 1732. Hardy.
 — *fasciculata* (fascicled). 1. Blue. July. Lima. 1817. Hardy.
 — *gracilis* (slender). 1. Blue. July. Lima. 1830. Greenhouse.
 — *hirtella* (hairyish). 1. Blue. June. N. Amer. 1820. Hardy.
 — *tuberosa* (tuberous). 1. Blue. June. Mexico. 1732. Stove.

HARDY EVERGREEN TRAILERS.

- C. Carolina'na* (Carolina). 2. Purple, blue. America. 1732.
 — *Virginica* (Virginian). 1. Blue. June. Virginia. 1779.

GREENHOUSE EVERGREEN TRAILERS.

- C. Africa'na* (African). 1. Blue. July. Cape of Good Hope. 1759.
 — *angustifolia* (narrow-leaved). 1. Blue. June. Carolina. 1827. Half-hardy.
 — *cyanæa* (bright blue). 1. Blue. July. N. Holland. 1820.

STOVE EVERGREEN TRAILERS.

- C. Bengale'nsis* (Bengal). 3. Blue. June. Bengal. 1794.
 — *Cayenne'nsis* (Cayenne). 1. Blue. June. Guiana. 1823.
 — *deficiens* (deficient). 6. Blue. August. Brazil. 1823.
 — *dianthifolia* (pink-leaved). 1. Blue. July. 1816. Twiner.
 — *dubia* (doubtful). 1. Blue. June. 1818.
 — *longicaulis* (long-stalked). 3. Blue. August. Caraccas. 1806.
 — *molliis* (soft). 2. Blue. August. Caraccas. 1804.
 — *obliqua* (twisted-leaved). 1. Blue. June. 1820.
 — *pallida* (pale). 1. Blue. June. Trinidad. 1820.
 — *parviflora* (small-flowered). 1. Blue. June. 1824.
 — *polygama* (various-flowered). Blue. June. China. 1818.

COMMERSO'NIA. See BARRINGTO'NIA.

COMOCLA'DIA. Maiden Plum. (From *kome*, hair, and *klados*, a branch; in reference to the dense, silky covering on the young branches. Nat. ord., *Anacardis* or *Terebinths* [*Anacardiaceæ*]. Linn., 3-Triandria 1-Monogynia. Allied to Pistacia.)

Stove evergreen trees. For cultivation, see BARRINGTO'NIA.

- C. dentata* (tooth-leaved). 30. Red. July. W. Ind. 1790.
 — *heifolia* (holly-leaved). 15. Red. Caribbee Isles. 1789.
 — *integrifolia* (whole-leaved). 15. Red. Jamaica. 1778.

COMPARETTIA. (Named after *Comparetti*, an Italian botanist. Nat. ord., *Orchids* [*Orchidaceæ*]. Linn., 20-Gynandria 1-Monandria. Allied to *Inopsis* and *Trichocentron*.)

Stove orchids. Divisions and offsets; fibry peat, sphagnum, and broken potsheards. Plants

raised above the surface of the pot, or fastened in a very shallow, well-drained basket. Summer temp., 60° to 90°; winter, 50° to 55°.

C. coccinea (scarlet). 1. Scarlet. August. Brazil. 1838.

— *falcata* (sickle-shaped). 4. Rose. May. Mexico. 1836.

— *rosea* (rosy). 4. Rose. May. Spanish Main. 1843.

COMPOST is a mixture of manures, or of earths and manures, in such proportions and of such qualities as are considered particularly applicable to the plant or crops to which the composition is to be applied. If leaves are required to be largely developed, the compost can be scarcely too rich; for the greater the quantity of food imbibed by the roots, the greater will be the surface of leaves requisite for its elaboration. But if flowers and fruit, as well as leaves, are desired, the composts, if excessively rich, will cause these to diminish in number and size, the flower buds passing into leaf-buds, for the reason already alleged.

Composts must also duly regulate the amount of moisture supplied to the roots, totally independent of drainage, as compost retains to them moisture by its chemical and capillary powers. The richer in decomposing animal and vegetable matter, and the looser its texture, the better does a compost retain moisture. And this power is diminished in proportion as siliceous sand, or calcareous (chalky) matters preponderate.

Gardeners prepare their composts from strong, tenacious loam, half-rotten leaf-mould, heath-soil, horse-manure, cow-manure, charcoal and wood-ashes, bone-dust, sharp sand, burnt turf, and moss, well-scalded; and, from these materials, there is no doubt that a compost could be prepared, embracing any desired degree of fertility. See MANURES and POTTING.

COMPOST-GROUND. This should be an enclosure concealed from sight, but in the vicinity of the hotbeds, hothouses, and other similar structures, for the convenience of moving the pots to it in the potting season, conveyance of manures, &c. All the earths and manures should be under a shed; and the dungs, being liable to lose much of their fertile components in drainage, should be in water-tight tanks; and if these are covered, all the better.

COMPTO'NIA. (Named after *Bishop Compton*. Nat. ord., *Galeworts* [*Myricaceæ*]. Linn., 21-Monæcia 3-Triandria.)

Hardy deciduous shrub. Layers; sandy soil.

C. asplenifolia (fern-leaved. Sweet-gale): 4. Brown. April. N. Amer. 1714.

CONANTHERA. (From *konos*, a cone, and *anthera*, an anther, or pollen-bag; in reference to the six anthers forming a cone in the early stage of the flower. Nat. ord., *Lilyworts* [Liliaceæ]. Linn., 6-*Hexandria* 1-*Monogynia*. Allied to *Cumingia* and *Squill*.)

Pretty little half-hardy bulbs, very scarce, being difficult to preserve, like others of this Chilean class of plants. Sandy soil and a dry border in front of a greenhouse suit them best, and to be protected from wet and frost in winter. Propagated by offsets.

C. bifolia (two-leaved). 1. Blue. April. 1823.
— *Simsii* (Sims's). 1. Blue. April. 1823.

CONCRETE WALKS. From personal inspection we can say these are the best we ever saw. Mr. Beaton's directions for making them are as follows:—A layer of stones, brick-bats, shells, or clinkers, six inches deep, to form a dry bottom; a layer of chalk or lime, in the proportion of one to ten of the stones or other foundation, and well rolled and watered to the thickness of three inches, with a rise of two inches in the centre; over this half an inch of gravel and lime, or fine chalk; water and roll well again; add one-eighth of an inch of the best coloured gravel; and again roll until quite solid. Have the walk two inches wider on each side than you desire, as this checks the turf and weeds from encroaching, and prevents the rain-water getting to the foundation of the walk.

CONDALIA. (Named after *Condal*, a Spanish botanist. Nat. ord., *Rhamnaceæ* [Rhamnaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Zizyphus*, or *Christ's Thorn*.)

Half-hardy evergreens. Cuttings of half-ripe shoots; common soil. Wants a little protection in winter.

C. microphylla (small-leaved). 2. Green. Chili. 1824.

CONFERTÆ, or CONE-BEARERS, are such trees and shrubs, with their allied genera, as are commonly known as the Pines, Larches, Firs, Cedars, Junipers, and Arbor Vitæ.

CONIUM. Hemlock. (From *konao*, to whirl round; in reference to the giddiness caused by eating the leaves. Nat. ord., *Umbellifers* [Apiaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Aracacha*.)

Division of the roots, and sowing the seeds in spring; *C. moschatum* by offsets. Common soil.

C. Croaticum (Croatian). 6. White. July. Hungary. 1818. Hardy herbaceous perennial.
— *maculatum* (spotted. Common Hemlock). 5. White. June. Britain. Hardy biennial.
— *moschatum* (musk). 2. White. June. S. Amer. 1824. Stove tuber.

CONNARUS. (From *connaros*, name of a tree; adopted from the Greek of Athenæus. Nat. ord., *Connarads* [Connaraceæ]. Linn., 16-*Monadelphia* 6-*Decandria*.)

Stove evergreen shrubs. Cuttings of firm shoots in April, in sand, under a bell-glass, and in bottom-heat. Summer temp., 60° to 80°; winter, 50° to 55°.

C. nitidus (shining). 8. White. Silhet. 1824.
— *paniculatus* (panicked). 3. White. Chittagong. 1824.
— *pubescens* (downy). 6. White. Guiana. 1822.

CONOCARPUS. Button-tree. (From *konos*, a cone, and *carpos*, fruit; in reference to the fruit growing so closely together on the spikes as to resemble cones. Nat. ord., *Myrobalans* [Combretaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Terminalia*.)

The bark of *C. racemosus*, one of those plants called Mangroves in Brazil, is in general use for tanning at Rio. Stove evergreen shrubs. Treatment similar to *Connarus*.

C. acutifolius (pointed-leaved). 10. Pale yellow. S. Amer. 1824.
— *erectus* (upright). 10. White. Jamaica. 1752
— *procumbens* (lying-down). 1. Pale yellow. Cuba. 1730.
— *racemosus* (racemed). 10. White. S. Amer. 1820.

CONOSPERMUM. (From *konos*, a cone, and *sperma*, a seed; the fruit, or carpels, growing close together, and forming a cone. Nat. ord., a section of *Proteads* [Proteaceæ]. Linn., 4-*Tetrandria* 1-*Monogynia*.)

Greenhouse evergreen shrubs, from New Holland. Cuttings in sand, under a glass, either in spring or autumn; sandy peat. Summer temp., 55° to 75°; winter, 35° to 45°.

C. acerosum (fine-leaved).
— *acinacifolium* (scimitar-leaved). 3. White. June. 1824.
— *caruleum* (blue). Blue. 1830.
— *capitatum* (flower-headed). 3. Blue. July. 1824.
— *densiflorum* (thickly-flowered).
— *ellipticum* (oval-leaved). 3. White. July. 1822.
— *ericifolium* (heath-leaved). White. 1820.
— *glumaecum* (chaffy).
— *Hugelii* (Baron Hugel's).
— *incurvum* (incurved-leaved).
— *longifolium* (long-leaved). 4. White. July. 1824.
— *sclerophyllum* (hard-leaved).
— *taxifolium* (yew-leaved). 3. White. July. 1824.
— *tenuifolium* (thin-leaved). 3. White. July. 1824.
— *triplinerveum* (three-nerved). 1830.
— *undulatum* (waved-leaved).

CONOSTE'GIA. (From *konos*, a cone, and *stēge*, a covering; alluding to the lobes of the calyx clasping the angles of the ovary. Nat. ord., *Melastomads* [*Melastomacæ*]. Linn., 10-*Decandria* 1-*Monogynia*. Allied to *Aplectrum*.)

Stove evergreen shrubs. Cuttings of shoots, well ripened, and the cut ends allowed to get dry; peat and sandy loam. Summer temp., 60° to 80°; winter, 50° to 55°.

C. Balbisiana (Balbis's). 20. White. May. Jamaica. 1825.

— *procera* (tall). 12. White. June. Jamaica. 1822.

— *semicrenata* (half-scolloped-edged). 20. White. April. W. Ind. 1823.

CONOSTE'PHIUM. (From *konos*, a cone, and *stēphanos*, a crown; referring to the disposition of the flowers. Nat. ord., *Epacrids* [*Epacridacæ*]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Styphelia*.)

This belongs to the berry-bearing section of *Epacrids*. The berries, though not much liked by Europeans, are eatable and wholesome. The "Native Currant" of New Holland and the Tasmanian Cranberry belong to this section. They are all favourite plants with gardeners for the beauty of their flowers and the great skill required to grow them into fine specimens. Greenhouse evergreen shrubs. Cuttings of young shoots in sand, in April; peat and sandy loam. Summer temp., 60° to 75°; winter, 40° to 50°.

C. pendulum (hanging-down). Swan River.

CONO'STYLIS. (From *konos*, a cone, and *stylos*, a style; the style, or female organ, grows in the shape of a cone at the bottom. Nat. ord., *Bloodroots* [*Hæmodoracæ*]. Linn., 6-*Hexandria* 1-*Monogynia*. Allied to *Anigozanthos*.)

Greenhouse herbaceous perennials, from New Holland. Divisions; sandy loam. Summer temp., 55° to 75°; winter, 40° to 45°.

C. aculeata (prickly). 1. 1820.

— *au'rea* (golden-flowered). Yellow.

— *dealbata* (mealy-stemmed).

— *serrulata* (fine-saw-edged). 1824.

— *setigera* (bristle-bearing). 1825.

— *setosa* (bristly). Yellow. September. 1843.

CONOTHA'MNUS. (From *konos*, a cone, and *thamnos*, a shrub; from the form of the shrubs. Nat. ord., *Myrtleblooms* [*Myrtacæ*]. Linn., 18-*Polyadelphia* 2-*Polyandria*.)

Greenhouse evergreen shrubs, from Swan River. Cuttings of young firm shoots in sand, under a bell-glass. For culture, see *CALOTHA'MNUS*.

C. ericoides (woolly-fruited). Red. May.

— *lateralis* (spreading). Red. June.

— *trinervis* (three-nerved). Red. June. 1840.

CONRA'DIA. (Named after *Conrad Gesner*, a botanist of Zurich. Nat. ord., *Gesnerworts* [*Gesneracæ*]. Linn., 14-*Didynamia* 2-*Angiospermia*. Allied to *Gloxinia*.)

Stove evergreen shrubs. Cuttings of ripe shoots under a glass, in bottom-heat; loam, sand, and peat. Common temperature of stove.

C. calycitru (large-calyced). 1½. Red and white. Jamaica. 1824.

— *floribunda* (many-flowered). Deep reddish-scarlet. October. S. Amer. 1843.

— *longiflora* (long-flowered). 1½. June. Jamaica. 1823.

— *scabra* (rough). 2. Scarlet. July. Jamaica. 1820.

CONSERVATIVE WALLS. See **WALLS**.

CONSERVATORY is often used synonymously with *Greenhouse*, and then it denotes a suitable structure for the cultivation of those exotic plants which are just too tender for our climate, yet do not require the hot temperatures of plant-stoves, orchid-houses, &c., which are set apart chiefly for plants from the tropical regions. With the greenhouse should be associated the idea of plants cultivated in pots or boxes; but with conservatory we would associate the idea of plants growing in suitable soil, without at least the apparent intervention of pots and boxes, and the structure connected with the residence. To keep up the interest of such places, it is necessary that plants in bloom should be introduced; but in every case the pot should be *plunged*, so that the plant may *appear* to be growing in the soil. We would only make one exception in the case of very small ornamental plants, or even those not so very small, but to which particular attention is wished to be directed. We would elevate them in groups into ornamental vases or baskets, for which suitable places should be formed, and which would be quite as much in harmony in such a place as in ornamenting a regular geometrical flower-garden. For several reasons, therefore, the planting out in conservatory fashion should not be attempted, except with climbers for the rafters, where the space is but limited, as a few plants, however beautiful at times, when seen every day all the year round in the same position, lose, to a certain extent, the power of pleasing. The having the plants in large pots or tubs would enable you at any time to effect fresh combinations. Where the range of glass is varied and extensive, though the plants be chiefly turned out in the soil, the same feeling of sameness is not engendered, as the owner may easily enter his house at different points; and in such circumstances the very number of objects will constitute variety.

Unity of expression is, to a certain extent, maintained by a mixture of the two modes, the centre of the house being supplied with plants that are really turned out, or which, brought for a temporary purpose, appear to be so, while all round the house there is a broad shelf for the accommodation of plants in pots. In saying "all round the house," we are, of course, alluding to houses that have glass on all sides. Where there is an opaque back wall, the shelf could be only at the front and ends. However desirable it is to have light on all sides, where expense for heating in winter is no great object, yet very pleasing effects are produced, even in lean-to roofs, where a little attention is paid to unity of idea. This has been strikingly exemplified in the range of plant-houses at the Duke of Devonshire's, at Chiswick, most of which, with the exception of the centre, the old conservatory, formerly consisted of lean-to forcing-houses. The handsomest small conservatory we know is at Mr. Wilson's, Stamford Hill, near London.

With the single exception of planting out, the treatment of the conservatory is similar to that of the greenhouse. Keeping this in mind, good drainage should be secured; and the general soil should consist of two parts fibry loam and one of fibry peat, with pieces of sandstone, broken bricks, and charcoal intermixed, to keep it open. The peculiar requirements of each plant, as respects soil and manure, can be attended to in planting. Where the object is merely to preserve the plants during the winter, the general treatment will be similar to that of a cold greenhouse. Where the ideas of comfort, alike for the plants and the visitors, are to be maintained, and flowering plants are to be introduced liberally in winter, the general temperature should not be lower than 45°, and should range from that to 50°, allowing 10° or 15° more for sunshine. In such circumstances, the Camellia and the Orange will bloom during most of the winter; and Acacias, Eugénias, &c., will bloom early in spring. The greatest possible quantity of air must be given in summer; but in winter it must be very limited in frosty and dull, foggy weather, it being better, in either circumstances, to keep the house rather close, in preference to using large fires. Protecting by covering in severe weather will be of importance.

The heating medium, to be most effectual, should be above-ground; but, to save room, the flues or pipes may be beneath the pathways, which will also be of importance for keeping the soil in the beds in a nice warm condition, and in such a house will render the flowering of many of the hardier stove climbers a matter of certainty. Watering may be given liberally during summer, both at bottom and overhead; but in winter the plants will want little if duly attended to in the autumn; yet what is given should be rather warmer than the atmosphere of the house. In planting, it will often be necessary to make little brick pits for particular plants, to prevent them occupying too much space.

CONTRAJE'RYA ROOT. *Dorstenia contrajerva*.

CONVALLA'RIA. Lily of the Valley. (From the Latin *convallis*, a valley, and *rica*, a mantle; in reference to the dense covering formed by the leaves. Nat. ord., *Lilyworts* [Liliacæ]. Linn., 6-*Hexandria* 1-*Monogynia*.)

Hardy herbaceous perennial, native of Britain. Divisions; common soil, shady situation.

C. majalis (May). 1. White. May.

— *fo're-ple'no* (double-flowered). 1. White. May.

— *ru'bra* (red). 1. Flesh. May.

CONVO'LVULUS. Bindweed. (From *convolvere*, to entwine; in reference to their twining habit. Nat. ord., *Bindweeds* [Convolvulacæ]. Linn., 5-*Pentandria* 1-*Monogynia*.)

The roots of most of the plants in this order abound in a milky juice, which is acrid, and in some cases, highly purgative, as the Jalap and Scammony plants. Cuttings, divisions, and seeds of perennials, and seeds of annuals; peat and loam for the greenhouse and stove species, and common soil for the hardy. Seeds of hardy, sown in open border, in March or April, or in hotbed for those which need protection.

HARDY ANNUALS.

C. elongatus (long-flower-stalked). 1. White. July. Canaries. 1815. Twiner.

— *Forskælii* (Forskæli's). Blue. June. Egypt. 1837.

— *pentapetaloides* (five-petaled). 1. Light blue. July. Majorca. 1789. Trailer.

— *Sicululus* (Sicilian). 2. Light blue. July. South Europe. 1640. Trailer.

— *strictus* (straight). Rose. June. Egypt. 1822.

— *tene'llus* (delicate). White. June. N. Amer. 1812. Climber.

— *tri'color* (three-coloured). 3. Striped. July. South Europe. 1629.

— *albiflorus* (white-flowered). 1. White. July. South Europe. 1629.

— *undulatus* (waved-leaved). White, red. June. South Europe. 1816.

TENDER ANNUALS.

- C. bicolor* (two-coloured). 6. White, purple. July. Isle of France. 1818. Stove.
 — *erubescens* (flushing). 6. Pink. July. N. S. Wales. 1803. Greenhouse biennial.
 — *evoluloides* (evolulus-like). 15. Red. July. South Europe. 1820. Greenhouse.
 — *geniculatus* (kneed). Red. July. Australia. 1826. Greenhouse climber.
 — *hirtus* (hairy-stalked). 3. Blue. July. E. Ind. 1804. Stove trailer.
 — *macrocarpus* (large-fruited). 10. Purple. July. S. Amer. 1752. Stove twiner.
 — *quinquefolius* (five-leaved). 6. White. July. W. Ind. 1807. Stove climber.

GREENHOUSE EVERGREENS.

- C. alceifolius* (alcea-leaved). Yellow, purple. June. Cape of Good Hope, 1823. Herbaceous.
 — *bryoniaefolius* (bryony-leaved). 3. Pink. July. China. 1802. Deciduous twiner.
 — *Canariensis* (Canary). 20. Pink. June. Canaries. 1690. Twiner.
 — *cane-scens* (hoary). 1. Blue. Bogota. 1846. Twiner.
 — *cneorum* (cneorum). 3. Pink. June. Levant. 1640. Shrub.
 — *furinosus* (mealy-stalked). 6. Pink. May. Madeira. 1777. Twiner.
 — *floridus* (flowery). 2. Pink. August. Canaries. 1799. Trailer.
 — *Hermannia* (Hermann's). 5. White. August. Peru. 1799. Twiner.
 — *lanatus* (woolly). White. May. Levant. 1829. Climber.
 — *linearis* (narrow-leaved). 2. Pink. June. South Europe. 1770. Shrub.
 — *pannifolius* (cloth-leaved). 15. Blue. August. Canaries. 1805. Twiner.
 — *saxatilis* (rock). 1. White. South Europe. 1796. Trailer.
 — *scoparius* (broom). 2. White. August. Canaries. 1733. Trailer.
 — *suffruticosus* (sub-shrubby). 3. Pink. July. Madeira. 1788. Twiner.
 — *tenuissimus* (most-slender). Lilac. July. Levant. Herbaceous climber.
 — *tiliaceus* (lime-tree-like). 3. Purple. July. Brazil. 1820. Twiner.

STOVE EVERGREENS.

- C. albivenius* (white-veined-leaved). 6. Pale pink. June. Algoa. 1823. Climber.
 — *arborescens* (tree-like). 10. Mexico. 1818. Shrub.
 — *ciliatus* (hair-fringed). 6. Pink. July. Cayenne. 1816. Twiner.
 — *glaber* (smooth). 12. White. May. Cayenne. 1806. Twiner.
 — *Guianensis* (Guiana). 10. White. July. Guiana. 1823. Twiner.
 — *maximus* (greatest. Ceylon). 20. Pink. July. Ceylon. 1799. Twiner.
 — *ocellatus* (purple-eyed). 1½. White, purple. July. S. Africa. 1844. Herbaceous climber.
 — *ochraceus* (yellow). 6. Yellow. July. Guinea. 1825. Twiner.
 — *pentanthus* (five-flowered). 6. Light blue. August. E. Ind. 1808. Twiner.
 — *reptans* (creeping). 1. Purple. July. E. Ind. 1806.
 — *Roxburghii* (Dr. Roxburgh's). White. July. E. Ind. 1826. Climber.
 — *scrobiculatus* (small-furrowed). 2. Pale red. S. Amer. 1825. Trailer.

C. verticillatus (whorled). 5. Blue. August. W. Ind. 1819. Twiner.

HARDY DECIDUOUS.

- C. althæoides* (althæa-like). 2. Pink. June. Levant. 1597. Twiner.
 — *bicuspidatus* (two-pointed). 4. Purple. June. Davuria. 1818. Twiner.
 — *Bonariensis* (Buenos Ayres). 3. White. July. Chili. 1817. Twiner.
 — *Cantabricus* (Cantabrian). 1. Pink. June. South Europe. 1640. Trailer.
 — *Chinensis* (Chinese). 6. Purple. July. China. 1817. Twiner.
 — *Corsicus* (Corsican). 1. Pink. June. Corsica. 1824. Twiner.
 — *ebracteatus* (unbracted). 1. White. July. 1819. Trailer.
 — *emarginatus* (end-notched). 2. Purple. July. 1817. Twiner.
 — *Gerardi* (Gerard's). 1. Pink. July. South Europe. Trailer.
 — *holosericeus* (all-silky). Pale yellow. June. Tauria. 1824.
 — *intermedius* (intermediate). Pale rose. June. South Europe. 1825.
 — *Italicus* (Italian). Rose. May. South Europe. 1844. Climber.
 — *lanuginosus* (rather woolly). 6. White. July. Levant. 1818. Climber.
 — *lineatus* (lined). 1. Purple. June. South Europe. 1770. Trailer.
 — *Malcolmi* (Malcolm's). White. July. Persia. 1824. Climber.
 — *Persicus* (Persian). White. June. Persia. 1829.
 — *platycarpus* (broad-fruited). Lilac. August. Mexico. 1827. Half-hardy.
 — *sabifolius* (sage-leaved). 1. Pink. July. Palestine. 1825. Trailer.
 — *scammonia* (scammony). White, purple. July. Levant. 1726. Twiner.
 — *Sibthorpii* (Sibthorp's). 1. White. July. France. 1823. Trailer.
 — *terrestris* (earthy). White. July. Altai. 1828.
 COO'KIA. Wampee-tree. (Named after Captain Cook, the circumnavigator. Nat. ord., Citronworts [Aurantiaceæ]. Linn., 10-Decandria 1-Monogynia. Allied to Murraya.)

A fruit highly esteemed in China and the Indian Archipelago. Stove tree; cuttings of ripe shoots in March, or when best obtainable, in heat, and under a bell-glass; peat and loam. Summer temp., 60° to 80°; winter, 50° to 55°.

C. punctata (dotted). 15. White. China. 1795.

COOPERIA. (Named after Mr. Cooper, gardener at Wentworth House, in Yorkshire, for many years. Nat. ord., Amaryllids [Amaryllidaceæ]. Linn., 6-Hexandria 1-Monogynia. Allied to Zephyranthus.)

We would have named this genus "The Evening Star." It is anomalous amongst its race for first opening its starry-white flowers in the cool of the evening. They possess the fragrance of the primrose. Although probably hardy, they are best treated as half-hardy, in a border of deep, sandy soil, under a west wall, where they flower all the summer, and produce seeds. Each stalk produces but one flower; but a tuft of bulbs would produce a fine effect. Offsets and seeds, sown in spring; sandy loam.

- C. chlorosolen* (green-tubed). 1. White, green. Mexico. 1835.
 — *Drummondii* (Drummond's). 1. White, red. Mexico. 1835.
 — *pedunculata* (long-flower-stalked). White, orange. July. Texas. 1835.

COPAI'FERA. (From *copaiba*, the Brazilian name for its balsamic juice, the balsam of capivi, and *fero*, to bear. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 10-*Decandria* 1-*Monogynia*. Allied to *Cynometra*.)

Stove evergreen trees; cuttings of firm shoots in March, in heat, under a glass; peat and loam. Summer temp., 60° to 80°; winter, 50° to 55°.

- C. Guianensis* (Guiana). 30. White. Guiana. 1825.
 — *officinalis* (shop). 20. White. S. Amer. 1774.

CO'PTIS. (From *kopto*, to cut; in reference to the division of the leaves. Nat. ord., *Crowfoots* [Ranunculaceæ]. Linn., 13-*Polyandria* 6-*Polygynia*. Allied to *Helleborus*.)

The roots of this plant are used in the United States medicinally, under the name of Gold Thread. Hardy herbaceous perennial; division of the roots and seeds; sandy, peaty soil; requires the protection of a cold pit in winter.

- C. trifolia* (three-leaved). 4. Brown. May. N. Amer. 1782.

CORDYL'NE. Club Palm. (From *kordyle*, a club. Nat. ord., *Lilyworts* [Liliaceæ]. Linn., 6-*Hexandria* 1-*Monogynia*. Allied to *Dracena*.)

Stove evergreen shrubs. Suckers; peat and loam; or light, sandy loam and vegetable mould. Summer temp., 60° to 80°; winter, 50° to 55°.

- C. australis* (southern). 10. Blue, white. New Zealand. 1823.
 — *cannefolia* (canna-leaved). 4. N. Holland. 1820.
 — *congesta* (crowded). 10. Pale blue. March. N. Holland. 1822.
 — *hemichrysa* (half-golden). 2. Isle of Bourbon. 1823.
 — *indivisa* (undivided). 10. Blue. New Zealand.
 — *stricta* (upright). 10. Blue. March. New Zealand. 1820.

COREO'PSIS. (From *koris*, a bug, and *opsis*, like; referring to the appearance of the seeds. Nat. ord., *Composites* [Asteraceæ]. Linn., 19-*Syngenesia* 3-*Frustranea*.)

Hardy annuals, seeds in common soil, in March; hardy perennials, division of the roots in the autumn or spring; West Indian species require a hotbed; and the perennial herbaceous and evergreen species are multiplied by divisions and cuttings. Light, sandy soil.

- C. alba* (white, climbing). 6. White. June. Jamaica. 1699.
 — *angustifolia* (narrow-leaved). 2. Yellow. July. N. Amer. 1778.
 — *Atkinsonii* (Atkinson's). 2. Yellow, brown. Columbia. 1826.
 — *arguta* (sharp-notched). 2. Yellow. August. Carolina.
 — *areua* (golden). 3. Yellow. August. N. Amer. 1785.

- C. auriculata* (ear-leaved). 6. Yellow. July. N. Amer. 1699.
 — *bicolor* (two-coloured). 2½. Yellow. June. Arkansas. 1822.
 — *chrysantha* (golden-flowered). 2. Yellow. August. W. Ind. 1762.
 — *coronata* (crowned). 2. Yellow, brown. July. Mexico. 1835.
 — *crassifolia* (thick-leaved). 3. Yellow. September. Carolina. 1786.
 — *dichotoma* (forked). 1. Yellow. September. Carolina. 1827.
 — *diversifolia* (various-leaved). 2. Crimson. July. N. Amer. 1833.
 — *Drummondii* (Drummond's). 2. Yellow, purple. September. Texas. 1834.
 — *ferulifolia* (ferula-leaved). 3. Yellow. October. Mexico. 1799.
 — *filifolia* (thread-leaved). 2. Yellow. August. Texas. 1835.
 — *grandiflora* (large-flowering). 3. Yellow. August. N. Amer. 1826.
 — *incisa* (cut-leaved). 6. Yellow. October. W. Ind.
 — *integrifolia* (whole-leaved). 3. Yellow. July. Carolina.
 — *lanceolata* (spear-head-leaved). 3. Yellow. August. Carolina. 1724.
 — *latifolia* (broad-leaved). 3. Yellow. August. N. Amer. 1786.
 — *longipes* (long-stalked). 2. Yellow. April. Texas. 1835.
 — *palmeta* (hand-leaved). 3. Yellow. June. Louisiana. 1823.
 — *repens* (creeping). 6. Yellow. July. W. Ind. 1792.
 — *rosea* (roseate). 2. Red. July. North Casana. 1778.
 — *senifolia* (six-leaved). 4. Yellow. September. N. Amer. 1812.
 — *tenuifolia* (slender-leaved). 2. Yellow. N. Amer. 1789.
 — *tinctoria* (colouring).
 — *atro-marpurea* (dark purple). 3. Dark purple. June.
 — *atro-sanguinea* (dark crimson). Dark crimson. July. N. Amer. 1823.
 — *trichosperma* (hairy-seeded). 3. Yellow. August. North Jersey. 1818.
 — *verticillata* (whorl-leaved). 3. Yellow. August. N. Amer. 1759.

CORETHRO'STYLIS. (From *corethron*, a broom, and *stylos*, a style; referring to the consolidated styles being clothed with hairs. Nat. ord., *Byttneriads* [Byttneriaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Lasiopetalum*.)

Greenhouse evergreen shrub. Cuttings of young shoots in silver sand; peat and silver sand, with a little charcoal. Summer temp., 55° to 75°; winter, 40° to 48°.

- C. bracteata* (rosy-bracted). 3. Pink. April. Swan River. 1844.

CORIA'NDRUM. Coriander. (From *koris*, a bug; referring to the smell of the leaves. Nat. ord., *Umbellifers* [Umbelliferae]. Linn., 5-*Pentandria* 2-*Digynia*.)

A hardy annual; seeds sown in March; common soil.

- C. sativum* (cultivated). 2. White. June. England.

CORIA'RIA. (From *corium*, a hide; in reference to the crustaceous covering of the fruit. Nat. ord., a disputed point among botanists. Dr. Lindley says, "It is very difficult to say what is the affinity of this plant." Linn., 22-*Diœcia* 9-*Decandria*.)

The hardy species by suckers; the New Zealand one by cuttings in sand, under a bell-glass. Winter temp., 40° to 45°.

C. myrtifolia (myrtle-leaved). 6. Green. June. South Europe. 1629.

— *sarmentosa* (saggy). 3. Green. June. New Zealand. 1823.

COR'IS. (A name adopted from Dioscorides. Nat. ord., *Primeworts* [*Primulacæ*]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Lubinia*.)

A greenhouse biennial. Increased by seeds, in March; sand and peat. Interesting little plant for the greenhouse shelf.

C. Montpelien'sis (Montpelier). 1. Lilac. June. South Europe. 1640.

CORK-TREE. *Que'rcus phe'llos*.

CORK WOOD. *Ano'na palu'stris*.

CORNELIAN CHERRY. *Co'rnus ma'scula*.

CORN FLAG. *Glad'i'olus*.

CORNISH MONEYWORT. *Sibthor'pia Europœ'a*.

CORN SALAD, or LAMB'S LETTUCE (*Valeriane'lla olit'ria*), is grown for winter and spring salads. The first dish, formerly brought to table, was a red herring set in a corn salad.

Soil and Situation.—Any soil that is not particularly heavy; the best is a sandy, moderately-fertile loam, in an open situation.

Time and Mode of Sowing.—Sow in February and the two following months, and once a month during the summer, if in request; but it is not so palatable during this season. Lastly, during August and early in September, the plants from which will be fit for use in early spring, or during the winter, if mild. Three sowings are, in general, quite sufficient for a family, viz., one at the end of February, a second early in August, and a third early in September.

Sow in drills, six inches apart. The only cultivation required is frequent hoeing, the plants being thinned to four inches asunder. They should always be eaten quite young. In summer, the whole plant may be cut, as they soon advance to seed at this season; but in spring and winter the outer leaves only should be gathered, as for spinach.

To obtain Seed.—Some of the spring-

raised plants must be left ungathered from. They flower in June, and perfect their seed during the two following months.

Co'RNUS. Dogwood. (From *cornu*, a horn; in reference to the hardness of the wood. Nat. ord., *Cornels* [*Cornacæ*]. Linn., 4-*Tetrandria* 1-*Monogynia*.)

Hardy deciduous trees, shrubs, &c., except where otherwise specified. Propagated by seeds, layers, or cuttings, and root divisions; common soil and moist situation.

C. alba (white-berried). 10. White. July. Siberia. 1741.

— *Ro'ssica* (Russian). 8. White. July. Siberia. 1820.

— *Sib'rica* (Siberian). 10. White. August. Siberia. 1824.

— *alternifolia* (alternate-leaved). 15. White. July. N. Amer. 1760.

— *Canade'nsis* (Canadian). 1. Yellow. July. Canada. 1774. Herbaceous perennial.

— *circina'ta* (round-leaved). 6. White. July. N. Amer. 1784.

— *fl'rida* (flowery). 15. White. April. N. Amer. 1731.

— *gra'ndis* (grand). Green. Mexico. 1838. Half-hardy evergreen.

— *macrophy'lla* (large-leaved). White. July. Nepaul. 1827.

— *ma'scula* (male. *Cornel*). 15. Yellow. February. Austria. 1596.

— *fructu ce'ræ colora'to* (fruit wax-coloured). 20. Yellow. February.

— *variegata* (variegated). 8. Yellow. June. Austria. 1596.

— *oblonga* (oblong). 15. Purple. Nepaul. 1818.

— *panicula'ta* (panicked). 6. White. June. N. Amer. 1758.

— *sangui'nea* (bloody). 8. White. June. Britain.

— *variegata* (variegated). 8. White. June. Britain.

— *foliis variegatis* (variegated-leaved). 10. White. June. Britain.

— *ser'icea* (silky). 5. White. August. N. Amer. 1683.

— *asperifolia* (rough-leaved). 8. White. Carolina.

— *oblongifolia* (oblong-leaved). 8. White. August.

— *Sib'rica* (Siberian). 8. White. July. Siberia. 1824.

— *stri'cta* (erect). 10. White. June. N. Amer. 1758.

— *asperifolia* (rough-leaved). 10. White.

— *sempervirens* (sub-evergreen). 10. White. June.

— *variegata* (variegated). 10. White. June. N. Amer. 1758.

— *Sue'cica* (Swedish). 1. White. April. Britain. Herbaceous perennial.

CORNU'TIA. (Named after *Cornutus*, a French physician. Nat. ord., *Verbenas* [*Verbenacæ*]. Linn., 2-*Diandria* 1-*Monogynia*. Allied to *Callicarpa*.)

Stove evergreen shrub. Loam and peat; cuttings in bottom-heat, under glass, in February or March.

C. pyramida'ta (pyramidal). 6. Blue. July. Mexico. 1733.

CORON'ILLA. (From *corona*, a crown,

or garland; in reference to the disposition of the flowers. Nat. ord., *Leguminosae* [Fabaceæ]. Linn., 17-*Diadelpchia* 4-*Decandria*.)

The juice of *C. varia* is poisonous. Both greenhouse and hardy species are handsome, free-blooming plants. Seeds and cuttings; cuttings root readily during the summer months under a close frame, even without bottom-heat.

HARDY HERBACEOUS, &c.

- C. Cappadocica* (Cappadocian). 1. White. July. Cappadocia. 1800.
- *e'merus* (*scorpion-senna*). 3. Red, yellow. April. France. 1596. Deciduous shrubs.
- *globosa* (globe-form). 1. White. September. Crete. 1800. Deciduous creeper.
- *Iberica* (Iberian). 1. Yellow. July. Iberia. 1822. Deciduous trailer.
- *ju'ncea* (rush). 3. Yellow. June. France. 1856. Evergreen shrub.
- *squama'ta* (scaly). 1. White. June. Crete. 1820.
- *varia* (various). 1. Pink. September. Europe. 1597. Deciduous creeper.

GREENHOUSE EVERGREENS, &c.

- C. argentea* (silvery-leaved). 2. Yellow. May. Crete. 1664.
- *coronata* (crowned-headed). 2. Yellow. June. South Europe. 1776. Herbaceous perennial.
- *Cretica* (Cretan). 1. Striped. June. Candia. 1731. Annual.
- *glau'ca* (milky-green. *Seven-headed*). 2. Yellow. July. France. 1732.
- — *variegata* (variegated-leaved). 4. Yellow. August. Gardens.
- *minima* (least). 1. Yellow. July. South Europe. 1658. Herbaceous perennial.
- *montana* (mountain). 2. Yellow. June. Switzerland. 1776. Herbaceous perennial.
- *pentaphylla* (five-leaved). 2. Yellow. June. Algiers. 1700.
- *Valentina* (Valentine). 2. Yellow. August. South Europe. 1596.
- *viminalis* (twiggy). 3. Yellow. August. Mogad. 1798.

CORREA. (Named after *Correa*, a Portuguese botanist. Nat. ord., *Rutaceae* [Rutaceæ]. Linn., 8-*Octandria* 1-*Monogynia*.)

The settlers in New Holland employ the leaves of *Correae*, particularly those of *C. alba*, for tea. Greenhouse evergreen shrubs, from Australia. Cuttings of half-ripened shoots in sand, under a bell-glass, in bottom-heat, in spring. The finer sorts are also grafted on the commoner ones, such as *C. alba*. *C. speciosa* will scarcely strike at all; three parts sandy peat and one of turfy loam. Summer temp., 55° to 75°; winter 40° to 48°.

- C. alba* (white). 6. White. June. 1793.
- *ferruginea* (rusty). 3. Green, white. April. 1836.
- *pulche'lla* (pretty). 5. Scarlet. June. 1824.
- *ru'fa* (reddish). 6. White. June. 1821.
- *speciosa* (showy). 3. Scarlet. June. 1806.
- *vi'rens* (green-flowered). 6. Green. July. 1800.

CORTUSA. Bear's-ear Sanicle. (Named after *Cortusus*, an Italian botanist. Nat.

ord., *Primeworts* [Primulaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*.)

A hardy perennial, with frame protection in winter; does best as a pot-plant; root division; loam and peat.

- C. Matthioli* (Matthioli's). 1. Red. April. Austria. 1596.

CORYA'NTHE. Helmet-flower. (From *korys*, a helmet, and *anthos*, a flower; in reference to the shape of the lip, or labellum. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-*Gynandria* 1-*Monandria*.)

Stove orchids. Division; in pots well-drained; fibrous peat, chopped sphagnum, and small-broken potsherds. Growing temp., 75° to 85°; rest, 50° to 60°. See *The Cottage Gardener*, v. 256.

- C. Fieldingi* (Colonel Fielding's). Yellow, brown. May. S. Amer. 1845.
- *lentiginosa* (freckled). Yellow. May. Guiana. 1837.
- *macrantha* (large-flowered). 1. Brown, yellow. June. Caraccas.
- *maculata* (spotted-lipped). 1. Yellow-spotted. June. Demerara. 1829.
- — *Parkeri* (Parker's). 1. Yellow, purple. June. Demerara. 1839.
- *macrostachya* (large-spiked). Orange, yellow, brown. Mexico. 1843.
- *speciosa* (showy). 1½. Yellow, green. May. Brazil. 1826.
- — *alba* (white-flowered). 1½. White. June. Demerara. 1840.

CORYCIUM. (From *korys*, a helmet; referring to the shape of the flower. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-*Gynandria* 1-*Monandria*.)

One of those terrestrial orchids from the Cape of Good Hope which no British gardener has yet succeeded in cultivating with success.

- C. crispum* (curled). 1. Yellow. July. 1825.
- *orobanchoides* (orobanche-like). 1. Yellow. July. 1825.

CORYDALIS. (From *korydalos*, a lark, the spur of the flower resembling that of the lark. Nat. ord., *Fumeworts* [Fumariaceæ]. Linn., 17-*Diadelpchia* 2-*Hexandria*.)

Beautiful hardy plants. The perennial kinds are increased by root division at any season; and the annuals sown in the open ground, in spring or autumn, in common soil.

ANNUALS AND BIENNIALS.

- C. acaulis* (stemless). 1. Pale yellow. July. Hungary. 1825.
- *au'rea* (golden). 1. Yellow. June. N. Amer. 1812. Biennial.
- *breviflora* (short-flowered). 2. Pale yellow. June. Kamschatka. 1824.
- *capnoides* (capnus-like). 2. White. July. South Europe. 1596. Biennials.
- *claviculata* (tendrilled). 6. White, yellow. June. Britain. Climber.
- *glau'ca* (milky-green). 2. Yellow, purple. July. N. Amer. 1683.
- *impatiens* (impatient). 1. Yellow. May. Siberia. 1823.

- C. stricta* (straight). 1. Yellow. June. Siberia. 1827. Biennials.
 — *Uralensis* (Ural). 1. Pale yellow. August. Kamtschatka. 1824. Biennials.

HERBACEOUS.

- C. flaveola* (yellowish). $\frac{1}{2}$. Yellow. June. Russia. 1938.
 — *lutea* (yellow). 2. Yellow. July. England.
 — *peoniaefolia* (peony-leaved). 2. Purple. February. Siberia. 1820.
 — *Sibirica* (Siberian). 1. Yellow. July. Siberia. 1810.

TUBEROUS-ROOTED.

- C. angustifolia* (narrow-leaved). 1. Purple. February. Iberia. 1819.
 — *bracteata* (large-bracted). 1. Pale yellow. February. Siberia. 1829.
 — *bicalcarata* (two-spurred). 1. Pink. June.
 — *bulbosa* (bulbous). 1. Pink. February. Britain.
 — *Caucasica* (Caucasian). 1. Purple. February. Caucasus. 1823.
 — *fabacea* (bean-leaved). 3. Purple. February. Germany. 1815.
 — *Gebleri* (Gebler's). May. Altai. 1827.
 — *longiflora* (long-flowered). $\frac{3}{4}$. Pale rose. April. Altai. 1832.
 — *Marshalliana* (Marshall's). 1. Purple. February. Tauria. 1824.
 — *nobilis* (noble-flowered). 1. Lilac, yellow. May. Siberia. 1783.
 — *pauciflora* (few-flowered). 1. Purple. February. Siberia. 1819.
 — *tuberosa* (tuberous-hollow-rooted). 1. Purple. February. Europe. 1596.
 — *albiflora* (white-flowered). 1. White. February. Europe. 1596.

Co'RYLUS. Nut-tree. (From *korys*, a hood, or helmet; in reference to the calyx covering the nut. Nat. ord., *Mast-woorts* [Corylaceæ]. Linn., 21-Monæcia 9-Polyandria.)

Hardy deciduous shrubs, mostly cultivated for their fruits; common soil; readily increased either by seeds sown in October or November, or by layers or suckers.

- C. Americana* (American). 10. April. N. Amer.
 — *avellana* (filbert). 10. February. Britain.
 — *alba* (white Filbert). 10. February. Spain.
 — *Barcelonensis* (Barcelona). 8. February. Spain.
 — *crispa* (frizzled). 8. February.
 — *glomerata* (clustered). 8. February.
 — *grandis* (great Cob). 8. February.
 — *heterophylla* (various-leaved). 20. Yellow, red. February. Danube. 1829.
 — *Lamberti* (Lambert's). 10. February.
 — *ovata* (egg-fruited). 8. February.
 — *pumila* (dwarf). 6. February.
 — *purpurea* (purple-leaved). 10. February.
 — *rubra* (red Filbert). 10. February.
 — *tenuis* (thin Cosford). 10. February.
 — *tubulosa* (tubular-calyced). 10. February. South of Europe. 1759.
 — *tubulosa alba* (white-tubular-Filbert). 10. February.
 — *variegata* (variegated). 8. February.
 — *colurna* (hazel. Constantinople). 10. Apetal. February. Constantinople. 1665.
 — *humilis* (humble). 6. February. N. Amer. 1798.

- C. rostrata* (beaked). 5. February. N. Amer. 1745.

FILBERT CULTURE.—The following are the most esteemed kinds:—*White Filbert*; well known. *Red*; similar, but having a red skin. *Prolific cob*; a very large nut. *Cosford*; fine flavour, thin shell, great bearer. *Prolific dwarf*; well adapted for small gardens. *Gordon's thin-shelled*; a good nut. *Frizzled*; similar to the other filberts, husk more ornamental.

Propagation.—Layers, cuttings, grafting, and seed. Shoots of the previous year's growth root readily if *layered* any time during the rest-season. *Cuttings* should be made similar to those of the currant, the lower buds cut out in order to destroy their propensity to suckering. If they are to form neat little bushes, on a dwarfing system for small gardens, the cuttings may be nearly half a yard in length. *Grafting* is performed as with the apple or pear, and at the period when the buds first begin to swell. The common hazel-nut and the Spanish nut are generally used for stocks; the latter, it is affirmed, will not produce suckers.

Seed.—This practice is resorted to for the sake of raising new varieties, or for producing the ordinary hazels. In the former case, there is much room for progress still; and certainly no plant offers greater facilities to the hybridizer. Bearing, as it does, male and female blossoms separately, every opportunity exists for depriving any given kind of its catkins betimes.

Soil.—Any ordinary soil, if pretty good, will answer, provided it is not stagnant. A free, upland, light loam, however, is what they prefer. We have, nevertheless, known them succeed very well in a moorish-looking soil, and on well-drained peats, which had become sound through the application of marl or clay.

Culture during the growing period.—Very little is requisite after the regular winter pruning, unless it be the extirpation of suckers, and the removal, during summer, of those loose and ill-placed watery growths which only serve to confuse and darken the tree. We may here notice, that some little training may be necessary for those under a dwarfing-system in small gardens, in order to bring them into a compact and handsome shape.

Culture during the rest period.—Commencing with the training when young. They are best in single stems of about two feet in height; and the head should branch off equally, to accomplish which, some pruning back is requisite during the first year or two, whilst the head is forming, and the latter should be kept thin in the centre. When the trees are well established an annual pruning should be resorted to, consisting of still keeping the centre of the bush somewhat open, and in thinning out any cross shoots and superfluous spray. It must be observed, that the fruit is produced on shoots of the preceding year, and generally on portions which have been well exposed to the light. Any coarse or robust shoots should be shortened back nearly half their length; these will frequently produce axillary branches of a fruitful character. Do not prune until the blossoms are showing; this will be about the beginning of February. The female blossom is like a minute brush, of a pinkish colour; the male is the well-known catkin. In pruning, much regard must be paid to these blossoms, especially the female; scarcely a twig may be cut away containing them. This makes it evident that most of the pruning, or rather, thinning, requisite should have been well carried out prior to the commencement of fruitfulness.

It often happens that filbert-trees will possess female blossoms with few or no male catkins. When such is the case there will be no crop, unless means be taken to bring the male farina within their reach. Catkins must be sought about the period when the male dust is just beginning to burst. Branches containing these may be tied here and there amongst the bushes most needing them. It matters not what kind of nut they are from; probably the wild hazel is best.

Fruit: how to keep.—When gathered, the fruit must be kept in jars, in a cool cellar, with husks on. If it is desired to impart a fine, fresh-looking colour to the husks, they must be placed in a close vessel, and a small pan of sulphur gently burned, or rather, smouldered, beneath them.

Insects.—See CURCULIO NUCUM and APHIS CORYLI.

CORYMBS, a spike of flowers, the flower-stalks of which are longer in proportion as they stand lower down the main stalk

supporting them, so that the flowers are with a top nearly level. Those of *Spiræa opulifolia* and of the Mountain Ash are examples.

CORYNE'LLA. (From *koryne*, a club; referring to the shape of the style. Nat. ord., *Leguminous Plants* [Fabacæ]. Linn., 17-*Diadelphia* 4-*Decandria*. Allied to *Clanthus*.)

Stove evergreen shrub. Cuttings in sand under a glass, and in bottom-heat; peat and loam; summer temp., 60° to 80°; winter, 50° to 55°.

C. polyantha (many-flowered). 6. Purple. W. Ind. 1824.

CORYNOCA'RPUS. (From *koryne*, a club, and *carpos*, a fruit; referring to the form of the fleshy seed. Nat. ord., *Ardisiads* [Myrsinacæ]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Theophrasta*.)

Greenhouse evergreen tree; readily increased by layers in light, rich soil.

C. lævigatus (smooth). 20. White. New Zealand. 1823.

CORY'PHA. Fan Palm. (From *koryphe*, the summit; in reference to the leaves growing in tufts on the top of this palm. Nat. ord., *Palms* [Palmacæ]. Linn., 6-*Hexandria* 1-*Monogynia*.)

Stove palms, except where otherwise mentioned; soil, rich, sandy loam; increased by seeds.

C. australis (southern). 50. N. Holland. 1824. Greenhouse.

—*elutia* (tail). 150. E. Ind. 1825.

—*glaucescens* (milky-green). 100. E. Ind. 1820.

—*heterophyllus* (various-leaved). Danube. 1829. Greenhouse.

—*Pumos* (Pumos). 20. Cuba. 1824.

—*tectorum* (roof). 15. W. Ind. 1825.

—*umbraculifera* (umbrella-bearing). 100. E. Ind. 1742.

—*Utan* (Utan). 50. Moluccas. 1825.

CORYSA'NTHE. New Holland ground-orchids, of which little is known. Perhaps belonging to *Coryanthes*.

COSMA'NTHUS. (From *kosmos*, beautiful, and *anthos*, a flower. Nat. ord., *Hydrophyls* [Hydrophyllacæ]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Phacelia*.)

A half-hardy annual. Seeds; sandy soil.

C. fimbriata (fringed-petaled). 3. Pale flesh. June.

COSME'LLA. (From *kosmeo*, to adorn, Nat. ord., *Epacrids* [Epacridacæ]. Linn., 5-*Pentandria* 1-*Monogynia*.)

Greenhouse evergreen shrub. Cuttings in summer months; sandy peat and sand.

C. rubra (red-flowered). Red. N. Holland. 1826.

Co'smos. (From *kosmos*, beautiful; in reference to the ornamental flowers. Nat.

ord., *Composites* [Asteracæ]. Linn., 19-*Syngenesia* 2-*Superflua*. Allied to *Bidens*.)

Cosmea is united to this. Both the annual and perennial species are all readily increased from seeds, sown early in spring, and treated as tender annuals; planted out in the open borders in the summer months.

PERENNIALS.

- C. diversifolia* (various-leaved). 3. Lilac. September. Mexico. 1835. Hardy tuber.
— *scabiosoides* (scabious-like). 4. Scarlet. September. Mexico. Greenhouse tuber.

ANNUALS.

- C. bipinnata* (doubly-leafted). 3. Purple. July. Mexico. 1799.
— *chrysanthemifolia* (chrysanthemum-leaved). 2. Yellow. July. S. Amer. 1826.
— *crithmifolia* (sapphire-leaved). 2. Yellow. September. Mexico. 1826.
— *lutea* (yellow). 2. Yellow. October. Mexico. 1811.
— *parviflora* (small-flowered). 2. White. July. Mexico. 1800. Hardy.
— *sulphurea* (sulphur). 2. Yellow. July. Mexico. 1799. Hardy.
— *tenebra* (delicate). 2. Yellow. October. Mexico. 1824.
— *tenuifolius* (slender-leaved). 2. Purple. September. Mexico. 1836. Hardy.

COSSI'GNIA. (Named after *Cossigny*, a French naturalist. Nat. ord., *Soapworts* [Sapindacæ]. Linn., 6-*Hexandria* 2-*Digynia*. Allied to *Kœlreuteria*.)

Admired for its golden-veined leaves. Stove evergreen shrub. Soil, peat and loam. Cuttings root readily under glass, in bottom-heat.

C. Borbonica (Bourbon). 10. Mauritius. 1824.

COSSUS LIGNIPERDA. Goat Moth. The caterpillar of the Goat Moth is most destructive to the wood of fruit-trees, though the elm, oak, willow, poplar, and walnut, also, are liable to its attacks. It is the *Cossus ligniperda* of some naturalists, and the *Bombyx* and *Xyleutes cossus* of others. The caterpillar measures more than four inches in length, is smooth and shining, beset only here and there with single short hairs. It is dark red on the back, and the breathing-holes situated at both sides are of the same colour. The sides and lower part of the body are flesh-coloured; the head is black; the first segment, also, marked with black above. After remaining more than two years in the larva state, and casting its skin eight times, the caterpillar becomes of a light ochrish-yellow hue shortly before becoming a chrysalis, which usually takes place in spring, when it makes a strong cocoon of chips of wood and small pieces of bark, which it has gnawed off. The chrysalis is yellow, and the segments are deeply indented and capable of much extension; its back is furnished with

strong, pointed spines, sometimes of a reddish-brown colour. The cocoon is situated immediately within the opening in the tree, so that the pupa, when arrived at maturity, can press itself half out of the hole when the shell bursts, and the moth comes forth usually in the month of June or July, after having reposed in the pupa state for an indefinite time. When at rest the wings are folded together over the back in the form of a roof; it sits quietly in the day-time on the stems of trees, and is difficult to be distinguished on account of its grey colour. Its wings measure, from one tip to the other, nearly three inches, and many specimens more than this; the female is usually larger than the male. The fore-wings are ashy-white, clouded with brown, especially across the middle, and marked with very numerous streaks, like net-work; the hind-wings are brown; thorax ochrish in front, pale in the middle, with a black bar behind. The female is provided with a strong egg-depositor, with which she introduces her eggs into the bark of the tree—often 1000 in number; the young caterpillars living, at first, in and between the outer and inner bark, and afterwards, when they are stronger, penetrating into the wood. When the existence of one of these creatures is detected in a trunk, by its excrement, relief comes too late for the tree, even if we are able to kill the caterpillar, the mischief being already done. Notwithstanding this, the caterpillar should never be left undisturbed; and an attempt should be made to reach it by enlarging the opening with a garden-knife, or endeavouring to kill it by thrusting a piece of garden-wire up the hole. It is called the Goat Moth from the peculiar smell both of the insect and its larva.—*The Cottage Gardener*, iii. 137.

CO'STUS. (An ancient name, adopted from Pliny. Nat. ord., *Gingerworts* [Zingiberacæ]. Linn., 1-*Monandria* 1-*Monogynia*.)

The roots are very bitter, and without the aromatic pungent odour peculiar to the *Costus* of the continental shops, which is the root of a very different plant, a native of Arabia, and allied to *Cardopatum*. The *Costus* of Cashmere, employed to protect bales of shawls from moths, is the root of *Aukla'ndia costus*. Stove herbaceous perennials of easy growth, and readily increased by root division; sandy loam, with a little peat.

C. Afer (African). 2. White. June. Sierra Leona. 1822.

— *Arabicus* (Arabian). 2. White. August. Indies. 1752.

- C. discolor* (two-coloured-leaved). 4. White. June. Maran. 1823.
 — *lanatus* (woolly). 3. May. S. Amer. 1820.
 — *maculatus* (spotted). 2. White. July. Sierra Leone. 1822.
 — *Nepalensis* (Nepaul). 3. White. July. E. Ind. 1799.
 — *pictus* (painted-flowered). 2. Yellow, purple. July. Mexico. 1832.
 — *Piso'nis* (Pison's). 3. Crimson. June. Maran. 1823.
 — *speciosus* (showy). 3. White. August. E. Ind. 1799.
 — *spicatus* (spiked). 1. Yellow. June. W. Ind. 1793.
 — *spiralis* (spiral). 4. Scarlet. November. St. Vincent.
 — *villosissimus* (most hairy). 6. Yellow. November. St. Vincent. 1822.

COTONEA'STER. (From *cotonea*, Pliny's name for the quince, and *aster*, a corruption of *ad instar*, generally used to express likeness; literally, quince-like. Nat. ord., *Appleworts* [Pomaceæ]. Linn., 12-*Icosandria* 2-*Digynia*.)

Hardy shrubs, easily increased by layers or seed. Common soil.

- C. acuminata* (pointed-leaved). 4. Pink. April. Nepaul. 1820.
 — *affinis* (similar). 4. Pink. April. Nepaul. 1820.
 — *bacillaris* (rod). Nepaul. 1841.
 — *boxifolia* (box-leaved). 3. White. April. Nepaul. 1824.
 — *marginata* (white-margined). 3. White. April. Salarunpore. 1838.
 — *denticulata* (fine-toothed-leaved). 6. White. Mexico. 1826.
 — *emarginata* (bordered). White. April. Nepaul.
 — *frigida* (cold). 10. White, green. April. Nepaul. 1824.
 — *laxiflora* (loose-flowered). 4. Pink. April. 1826.
 — *uniflora* (one-flowered). 3. White. May. Nepaul.
 — *microphylla* (small-leaved). 4. White. April. Nepaul. 1825.
 — *multiflora* (many-flowered). 4. White. May. Altai. 1837.
 — *nummularia* (moneywort-leaved). 10. White, green. April. Nepaul. 1824.
 — *rotundifolia* (round-leaved). 3. White. April. Nepaul. 1820.
 — *Roylei* (Dr. Royle's). White. North India. 1845.
 — *tomentosa* (woolly). 4. Pink. April. 1759.
 — *vulgaris* (common). 4. Pink. April. Europe. 1656.
 — *depressa* (depressed). White. April. Europe.
 — *erythrocarpa* (red-fruited). 4. White. April. Europe.
 — *melanocarpa* (black-fruited). 8. White. April. Europe.

COTTON. *Gossypium*.

COTTON THISTLE. *Oncopordum*.

COTYLE'DON. Navelwort. (A name adopted from Pliny. Nat. ord., *House-leeks* [Crassulaceæ]. Linn., 10-*Decandria* 4-*Pentagynia*. Allied to *Sedum*.)

These plants feed as much, if not more, by the

myriads of pores or mouths all over their leaves, than by the roots, which seem only necessary for holding them stationary in the driest and most barren situations. Greenhouse evergreens, from the Cape of Good Hope, except where otherwise mentioned; sandy loam, with a little old mortar mixed with it, and plenty of drainage; cuttings at any season.

- C. alternans* (alternate-leaved). 1. July. 1816.
 — *calycoides* (cacia-like). 1. Yellow. May. 1818.
 — *canaliculata* (small-channelled). 1. May. 1818.
 — *clavifolia* (club-leaved). 1. Purple. September. 1824.
 — *coruscans* (glittering). 1. Orange. June. 1818.
 — *crassifolia* (thick-leaved). 2. 1824.
 — *cristata* (crested). 1. Variegated. September. 1818.
 — *cuneata* (wedge-like). 1. May. 1818.
 — *cuneiformis* (wedge-shape-leaved). 1. 1823.
 — *curviflora* (curve-flowered). 2. Orange. October. 1818.
 — *decussata* (cross-leaved). 2. Scarlet. August. 1819.
 — *dichotoma* (fork-shaped). 1. June. 1818.
 — *elata* (tall-powdered). June.
 — *fuscularis* (water-leaved). 1. Red. July. 1759.
 — *gracilis* (slender). 1. 1824.
 — *hemisphærica* (half-globular). 1. Purple. June. 1731.
 — *interjecta* (cast-down). 3. July.
 — *jasmiflora* (jasmine-flowered). 1. Purple. July. 1818.
 — *Lievenii* (Lieven's). 3. Red. May. 1832.
 — *maculata* (spotted). 1. White, purple. 1818.
 — *malacophyllum* (soft-leaved). 3. 1824.
 — *mammillaris* (nippled). 1. 1818.
 — *oblonga* (oblong-leaved). 2. Red. August. 1890.
 — *orbiculata* (round-leaved). 2. Red. 1798.
 — *ovata* (egg-leaved). 2. Red. August. 1789.
 — *papillaris* (pimpled). 2. Red. June. 1822.
 — *ramosa* (branchy). 1. June. 1748.
 — *ramosissima* (branchiest). 1. May. 1816.
 — *rhombifolia* (diamond-leaved). 1. June. 1823.
 — *rotundifolia* (round-leaved). 1. June. 1826.
 — *sempervivum* (houseleek-like). 3. Caucasus. 1836.
 — *spurius* (spurious). 1. July. 1731.
 — *tricuspidata* (three-spined). 1. July. 1823.
 — *triflora* (three-flowered). 1. Pink, white. June. 1821.
 — *tuberculosa* (knotted). 1. Orange. July. 1820.
 — *undulata* (waved-leaved). 1. June. 1818.
 — *ungulata* (nail-shaped). 2. May. Purple. 1818.
 — *viridis* (green). 2. 1824.

COUCH GRASS. (*Agropyrum repens*.) A weed, the creeping underground stems of which render it very difficult to be destroyed: constantly and carefully forking it out of the soil whenever seen, and burning it, is the most effectual remedy.

COULTE'RIA. (Named after Dr. Coulter. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 10-*Decandria* 1-*Monogynia*. Allied to *Poinciana*.)

Stove evergreen shrubs. Peat and loam; seeds.

- C. horrida* (horrid). 15. Orange. Carthage. 1824.
— *tinctoria* (dyer's). 12. Orange. Carthage. 1822.

COURSE'TIA. (Named after *Courslet*, a botanist. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 17-*Diadelphia* 4-*Decandria*. Allied to *Robinia*.)

Stove evergreens. Cuttings of firm young shoots, in spring or beginning of summer, in sand, under a bell-glass, and in a mild bottom-heat; loam and peat, well drained. Summer temp., 60° to 80°; winter, 45° to 55°.

- C. tomentosa* (downy). Yellow. June. Peru. 1824.
— *virgata* (twiggy). Yellow. June. Trinidad. 1820.

COUS'NIA. (Named after *Cousin*, a French botanist. Nat. ord., *Composites* [Asteraceæ]. Linn., 19-*Syngenesia* 1-*Æqualis*. Allied to *Carlina*.)

Hardy plants. Annuals and biennials, by seeds at the end of March, in the garden-border; perennials, by division in autumn or spring.

- C. cardioformis* (thistle-form). Purple. July. Iberia. 1804.
— *cynaroides* (cynara-like). White. Caucasus. Biennial.
— *Hohenakeri* (Hohenaker's). Yellow. July. Caucasus. 1836.
— *hystris* (porcupine). Purple. June. Russia. 1838.
— *macrocephala* (large-headed). Pale yellow. Caucasus. 1823. Biennial.
— *tendella* (tender). Purple. America. 1837. Annual.
— *Volgensis* (Wolga). Purple. Wolga. 1804.

COUTA'REA. (From *Coutari*, its name in Guiana. Nat. ord., *Cinchonads* [Cinchonaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Cinchona*.)

The *Cinchona* bark of French Guiana is the produce of this fine tree. Stove evergreen. Sandy peat and loam; cuttings in heat, under glass, in spring months.

- C. speciosa* (beautiful). 12. Purple. Guiana. 1803.

COUTOU'BEA. (From *Coutoubi*, its name in Guiana. Nat. ord., *Gentianworts* [Gentianaceæ]. Linn., 4-*Tetrandria* 1-*Monogynia*. Allied to *Leianthus* and *Lisianthus*.)

It is used in Guiana as a substitute for *Gentian*. Stove annual and biennial plants. Sow in a mixture of loam and peat, early in spring, in bothed, frame, or stove.

- C. ramoosa* (branchy). 3. White. July. Brazil. 1824. Annual.
— *spicata* (spiked). 2. White. July. Maran. 1823. Biennial.
— *verticillata* (whorled-headed). 1. White. July. Trinidad. 1818. Biennial.

COWA'NIA. (Named after *Mr. Cowan*. Nat. ord., *Roseworts* [Rosaceæ]. Linn.,

12-*Icosandria* 3-*Trigynia*. Allied to *Geum*.)

Greenhouse evergreen shrub. Sandy peat and loam; propagated by cuttings under glass, in heat, but not easily.

- C. plicata* (plaited-leaved). 2. Red. June. Mexico.

COWBERRY. *Vaccinium vitis-idaea*.

COWDIE PINE. *Daumara australis*.

COW-DUNG. See DUNG.

COW-GRASS. *Trifolium medium*.

COW-HERB. *Saponaria vaccaria*.

COW-ITCH. *Mucuna urens*.

COW-ITCH CHERRY. *Malpighia urens*.

COW-PARSNIP. *Heracleum*.

COW-SLIP. (*Primula veris*.) There are several varieties, varying in colour from almost white to a very deep yellow: some are single; but others are double, in the form that florists distinguish as *hose-in-hose*, the calyx in these being converted into a corolla. Some specimens will produce one hundred pips upon a single truss; and they have been known to yield even more than one hundred and fifty. The cultivation is the same as that of the *Auricula*.

COW-TREE. *Brosimum*.

CRAB OF WILD APPLE. *Pyrus acerba*.

CRA'MBE. Sea-kale. (The Greek name for Sea-kale. Nat. ord., *Crucifers* [Brassicaceæ]. Linn., 15-*Tetradynamia*.)

The Tartar bread, or large, fleshy roots of *Cra'mbe Tata'rica*, is eaten in Hungary in slices, with oil, salt, and vinegar. Hardy herbaceous-rooted perennials, of easy growth in rich garden-soil by root division, or seeds sown in March.

- C. cordifolia* (heart-leaved). 6. White. May. Caucasus. 1822.

- *ju'neea* (rush-like). 2. White. May. Iberia. 1828.

- *maritima* (common sea-kale). 1½. White. May. Britain.

- *Tata'rica* (Tartarian). 3. White. June. Siberia. 1754.

CRA'MBE MARI'TIMA or SEA-KALE should be grown in an open situation. It is readily increased by division of its roots, or by seeds, which is the best mode. Seeds sown towards the end of March, or beginning of April, in a well-manured and deeply-trenched soil, and lined out into four-foot beds, and with two-foot alleys between. Sow the seeds in patches two feet distant from patch to patch. The patches should be made by drawing a circular drill about eight inches in diameter, and two inches deep. Place therein about eight seeds, at equal distances round; and, when the seedlings are up and well established, they should be thinned out, leaving from three to four plants in each

patch, at equal distances, to form the crop. If the plantation be made from *one-year-old plants*, then three plants should be planted triangularly in each patch, the patches, as before directed, two feet distant from each other. If the plantation is made with pieces or *slips* of crowns, which will do nearly as well, plant in the same way; and the best times are the end of March or beginning of April. Should the weather be dry, watering will be required. With good attention to earth-stirring during the summer months, the plants will be sufficiently strong to force the following season, and may remain to cut from for many years.

In sowing for *transplanting*, the drills should be at least two feet from drill to drill, and two inches deep, and seeds about five inches apart in the drill, and the seedlings attended to as before during the summer.

To force Sea-kale.—Some prefer taking up plants either one year or more old, and placing the roots carefully on a gentle hotbed made up for the purpose, or carefully planting them in pots or boxes, to be placed in other warm structures, of course, in either case, to be kept in the dark; but we prefer, in all cases, to force this vegetable in the open ground, by inverting pots over the crowns, and covering over them dung or leaves. If dung is employed it should be well worked, as for other forcing purposes; but the best materials for covering the crowns and pots are leaves, which we yearly collect in a corner for the purpose; no turning over is requisite. A dry, calm day should always be chosen for covering up; and the whole of the work should be done at the same time, first placing the pots all ready to suit each crown; then with the lime-bag give each crown a good dusting over with quick-lime, which will destroy all worms and slugs; put on the pots immediately, and the warm leaves over them. The pots should be covered with the driest parts first. When leaves are used, these should be covered over with some long, littery material, to prevent their being blown about by winds. The whole covering should be from a foot to a foot and a half thick every way round the pots, and put together snug and tight. We always make our first covering (to be ready to cut kale by Christmas day) during the

first fortnight in November. Of course the weather has something to do with the covering required. The heat had better be too low than too high; the best temperatures are from 50° to 60°, and should never exceed 65°. We at all times use a few coal-ashes, just enough to cover the crowns. When we cut the kale, this prevents the slugs, &c., eating into the crowns. This remains until cutting ceases, and the materials and pots are cleared away; then the whole is carefully forked over, and the ashes spread about with the hand, and all is made tidy for the summer growth. See SEA-KALE.

CRANBERRY. *Oxycoccus palustris*.

CRANE'S-BILL. *Gera'nium*.

CRA'SSULA. (From the diminutive of *crassus*, thick, or succulent; in reference to their leaves, &c. Nat ord., *Houseleeks* [Crassulacæ]. Linn., 5-Pentandria 1-Monogynia.)

Greenhouse plants from the Cape of Good Hope, except where otherwise mentioned.

ANNUALS.

- C. diffusa* (diffuse). ½. Pink. June. 1774.
- *expansa* (expanded). ½. White. June. 1774.
- *glabrata* (smooth-cluster). ½. White. August. 1774.
- *glomerata* (round-headed). ½. White. September. 1774.
- *Magnolia* (Magnol's). ½. White. June. South Europe. 1800.
- *moschata* (musky). ½. White. September. N. S. Wales. 1794.
- *pulchella* (pretty). ½. Red. May. 1810.
- *retrofracta* (bent-back). ½. Yellow. June. 1788.
- *rubens* (red). ½. Pink. May. Italy. 1759.
- *subulata* (awl-shaped). ½. June. 1800.
- *verticillaris* (whorl-flowered). ½. Pink. July. South Europe. 1788.

BIENNIALS.

- C. aloides* (aloe-like). White. July. 1774.
- *capitellata* (small-headed). White. July. 1774.
- *centaureoides* (centaury-like). ½. Pink. May. 1774.
- *corymbulosa* (sub-corymbed). 1. White. November. 1818.
- *lineolata* (small-lined). ½. Yellow. July. 1774.
- *linguifolia* (tongue-leaved). ½. White. August. 1803.
- *obovata* (reversed-egg-leaved). White. June. 1818.
- *perisula* (dotted-leaved). 1. White. October. 1824.
- *sparsa* (scattered-leaved). ½. White. 1774.
- *tomentosa* (downy). White. April. 1818.
- *turrita* (tower-formed). White. March. 1818.

EVERGREENS AND HERBACEOUS.

- C. acutifolia* (pointed-leaved). ½. White. July. Greece. 1795.
- *albiflora* (white-flowered). ½. White. June. 1800.
- *arborescens* (tree-like). 3. Pink. May. 1739.

- C. bibracteata* (two-bracted). $\frac{1}{2}$. White. August. 1823.
 — *ma'jor* (larger). $\frac{1}{2}$. White. August. 1823.
 — *biconvexa* (double-convex). $\frac{1}{2}$. White. August. 1800.
 — *biplanata* (flat-sided-leaved). 1. White. September. 1823.
 — *bullata* (small-studded). 1. Yellow. August. 1800.
 — *ciliata* (hair-fringed). $\frac{1}{2}$. Yellow. July. 1732.
 — *media* (middle). $\frac{1}{2}$. Yellow. July. 1818.
 — *minor* (smaller). $\frac{1}{2}$. Yellow. July. 1818.
 — *coccinea* (small-scarlet). $\frac{1}{2}$. Scarlet. July. 1823.
 — *columnaris* (columnar). $\frac{1}{2}$. White. 1789.
 — *concinna* (neat). $\frac{1}{2}$. White. July. 1818.
 — *cordata* (heart-leaved). $\frac{1}{2}$. Pink. July. 1774.
 — *cotyledonis* (cotyledon-leaved). 1. White. 1800. Herbaceous.
 — *dejecta* (thrown-down). 1. White. July. 1820.
 — *ericoides* (heath-like). $\frac{1}{2}$. White. September. 1820.
 — *filicaulis* (thread-stemmed). $\frac{1}{2}$. White. August. 1820.
 — *fruticulosa* (under-shrubby). White.
 — *imbricata* (imbricated). 1. White. June. 1760.
 — *lactea* (milky). $\frac{1}{2}$. White. September. 1774.
 — *marginalis* (marginal). 2. Pale yellow. July. 1774.
 — *obliqua* (unequal-leaved). 4. Red. April. 1759.
 — *obtusata* (blunt-leaved). $\frac{1}{2}$. 1812.
 — *orbicularis* (round-leaved). $\frac{1}{2}$. Pink. August. 1731. Herbaceous.
 — *perfilata* (threaded). 1. Pink. September. 1785.
 — *pellucida* (transparent). 1. Pink. August. 1732.
 — *punctata* (dotted). 1. White. June. 1759.
 — *ramosa* (branchy). 2. Pink. July. 1774.
 — *ramuliflora* (branchlet-flowered). 1. White. June. 1822.
 — *revolvens* (revolving). 1. White. August. 1820.
 — *rosularis* (small-rosy). $\frac{1}{2}$. White. July. 1829. Herbaceous.
 — *rotundifolia* (round-leaved). 1. White. August. 1820.
 — *scaeva* (rough-leaved). $\frac{1}{2}$. Pale yellow. June. 1730.
 — *scabrella* (roughish). $\frac{1}{2}$. White. 1810.
 — *spathulata* (spathulated). $\frac{1}{2}$. White. August. 1774.
 — *squamulosa* (scaly). $\frac{1}{2}$. White. July. 1817.
 — *telephioides* (telephium-like). 1. White. July. 1818.
 — *tetragona* (four-angled). 2. White. August. 1711.

Culture.—Of the annual and biennial species the seeds should be sown in pots, in spring, and, when the seedlings will bear handling, separated and planted singly in other pots. The same soil suits them as the perennial succulent species, which are those most in request. The culture of these is as follows, whether for bedding-out or growing constantly under glass:—Make short cuttings, about the end of August or in September, of the tops of the young shoots which

have not flowered, and, after the cuttings are rooted, place singly in small pots, and grow till the end of October, when the pots are filled with roots. From this time to the end of February keep in a cool greenhouse, on a shelf close to the glass, and give two or three waterings during the winter. As soon as the plants begin to move in the spring, stop them at about three or four inches from the pot, and a few of the top leaves take off, to facilitate the growth of new shoots. As soon as these are well formed, thin them, so as to leave but from three to six shoots on each plant, according to its strength; and, as soon as the shoots are two inches long, shift into pots a size or two larger, in a mixture of yellow loam and pounded bricks, well drained.

After the spring potting, indulge with a little more than greenhouse-heat, by placing them for two or three weeks in a peach-house, or vinery, or a close pit, to have them in full vigour by the middle of May; because, the earlier in the summer they complete their annual growth, the more time and sun they have to finish their ripening process. About midsummer, or before the beginning of July, their growth is finished, and then turn out of doors, and plunge in sand close to the front wall of a hothouse, where the heat, in the dog days, will often range from 80° to 100°, and where little rain can get at them, the spouting which receives the water from the roof passing over their heads. The sand in which they are plunged gets very hot also; and, by watering it occasionally between the pots, the roots are kept sufficiently moist without any water being given on the soil in the pots. This treatment is more uniform and more natural to them than any mode of pit or greenhouse culture.

On the first indication of frost remove into shallow, cold pits, where the lights can be drawn off them every mild day till the end of November; then move them to a dry shelf in the greenhouse; but they could be wintered in a dry pit from which the frost could be kept.

During the following spring keep as cool as possible, being among the first set of greenhouse plants to be removed into cold pits when plants begin to grow in the spring, and about the last plants to be bedded out at the end of May; and they make the most brilliant bed for the whole season, flowering for six weeks to

two months, according to the situation of the beds. We prefer the tall, dark scarlet, or old *C. coccinea*, for beds; but there are three or four distinct sorts that do equally well in pots.

It often happens that plants with only two shoots will produce but one head of bloom, and then the second shoot will be sure to follow the year after, and thus a plant may be made to flower every year.

If this plant with two shoots offers to flower on both instead of one, and you wish the plant to flower every year, you must forego the pleasure of having both shoots to flower the first season. In that case, as soon as you can perceive the flower-buds in the spring, you must cut down one of the two shoots, and let the other one flower. The lower down the shoot is cut the better. If there is only an inch or two of it left, it is sure to produce three times the number of young shoots that will be necessary to retain. If you select three of the best placed, these will be enough for a plant so young; therefore, instead of two flower-heads, we have only one of them, and three others coming up to flower next season. As soon as the single truss of flowers begins to fade, about the middle of August, this flowering shoot must be cut down close likewise, and from it succession-shoots will be obtained, so that, in a large, old specimen, there are many flowering shoots and succession ones growing on at the same time; and, as soon as the plants are done flowering, the shoots which have borne the flowers are cut back to different lengths, according to the size or shape the plant is intended to be grown.

Every morsel of the old shoots cut off in August will make *cuttings*; but the best cuttings are obtained from the top ends of young, vigorous shoots; they will root either in heat or cold, at any time. Abundance of air, strong sunlight, and plenty of water during their two months of active growth; but little during the rest of the summer and autumn, and scarcely any in winter, are the leading principles in their culture.

CRATEGUS. The Hawthorn. (From *kratos*, strength; in reference to the strength and hardness of the wood. Nat. ord., *Appelworts* [Pomacææ]. Linn., 12-*Icosandria* 2-*Di-pentagynia*.)

The family of thorns furnishes a greater number of handsome small trees for ornamental

grounds than any other woody family whatever. They are all white-blossomed, except where we have mentioned otherwise; but they vary in another beauty—the colour of their fruit; and this, as far as we know, we have particularized. Young plants are obtained from seed sown in spring; and any particular varieties can be budded or grafted upon one of the most useful—the common whitethorn. Common garden-soil.

C. alpina (alpine). 20. May. Italy.

— *apiifolia* (parsley-leaved). 15. May. N. Amer. 1812.

— *minor* (smaller). May.

— *Aronia* (Aronia). 15. May. South Europe. 1810. Berries yellow.

— *grandiflora* (large-flowered). 15. May. 1846.

— *Azarella* (Azarole). 15. May. South Europe. 1640. Berries red.

— *Carpathica* (Carpathian). 20. May. Carpathian Mountains.

— *coccinea* (scarlet-fruited). 20. May. N. Amer. 1633.

— *corallina* (coralline). 15. May. France.

— *glandulosa* (glandulose). 20. May. N. Amer. 1759. Berries red.

— *indentata* (indented-leaved). 12. May. N. Amer.

— *macrantha* (long-spined). 20. May. N. Amer. 1819. Berries yellowish-red.

— *maxima* (largest). 20. May. N. Amer.

— *minor* (smaller-fruited). 20. May. N. Amer.

— *Neapolitana* (Neapolitan). May. Naples.

— *subvillosa* (slightly-hairy). 1832.

— *succulenta* (succulent-fruited). Germany.

— *cordata* (heart-leaved). 20. May. N. Amer. 1738. Berries bright red.

— *crenulata* (scalloped-edged). 10. May. Nepal. 1820.

— *crus-galli* (cockspur). 20. May. N. Amer. 1691. Berries dark red.

— *linearis* (narrow-leaved). 20. May. N. Amer.

— *nanus* (dwarf). 4. May. N. Amer.

— *pyracanthifolia* (pyracantha-leaved). 20. May. N. Amer.

— *salicifolia* (willow-leaved). 20. May. N. Amer.

— *spendens* (shining). 20. May. N. Amer.

— *Douglasii* (Douglas's). 15. May. N. Amer. 1830. Berries purple.

— *elliptica* (oval-leaved). 20. May. N. Amer. 1765.

— *filissa* (cleft-leaved). 15. May. 1810.

— *fiabellata* (fan-leaved). 15. May. South Europe.

— *flava* (yellow-pear-berried). 20. May. N. Amer. 1724.

— *lobata* (lobed). 15. June.

— *Florentina* (Florentine). 15. May. 1800.

— *florida* (florid). 20. May. N. Amer.

— *glabra* (smooth). 15. May. N. Amer. 1818.

— *heterophylla* (various-leaved). 20. May. N. Amer. 1816. Berries red.

— *latifolia* (broad-leaved). 20. May. N. Amer. 1820.

— *La'yi* (Mr. Tradescant Lay's). 10. North China. 1844.

— *lu'cida* (shining-leaved). 20. May. N. Amer.

— *Maroccona* (Morocco). 15. May. Barbary. 1822.

— *melanocarpa* (black-berried). 15. May. Tauria. 1820.

— *Mexicana* (Mexican). 15. May. Mexico. 1823.

— *monogyna* (one-styled). 15. May. Siberia.

- C. nigra* (black-fruited). 20. May. Hungary. 1819.
- *ordoratisma* (sweetest-scented). 15. May. Crimea. Berries bright red.
- *orientalis* (eastern). 15. May. South Europe. 1810. Berries dark red.
- *sanguinea* (blood-coloured). 15. May. Crimea. 1810.
- *ovalifolia* (oval-leaved). 20. May. N. Amer. 1810.
- *oxyantha* (sharp-spined. Common hawthorn). 15. May. Britain.
- *apetala* (petalless). 15. May.
- *aurantiaca* (orange-coloured-fruited). May.
- *au'rea* (golden-berried). 15. May.
- *capitata* (capitate-flowering). 15. May.
- *Celsiana* (Cels's). 15. May.
- *eriocarpa* (woolly-fruited). 15. White. May. Britain.
- *fexuosa* (zigzag-branched). 15. White. May.
- *foliis arg'entis* (white-variegated-leaved). 15. White. May.
- *foliis au'reis* (yellow-variegated). 15. White. May.
- *lacinia'ta* (cut-leaved). 12. White. May. Sicily. 1816.
- *leucocarpa* (white-fruited). 15. White. May. Britain.
- *ma'jor* (greater-fruited). 15. White. May.
- *multi'ples* (double-flowered). 15. White. May.
- *obtusata* (blunt-lobed). 15. White. May. France. 1822.
- *Oliveriana* (Oliver's). 20. White. May. Asia Minor. 1820. Berries black.
- *ple'na* (double-flowered). 15. White. May.
- *pre'cox* (early). 15. White. May.
- *pteris'folia* (brake-leaved). 15. White. May.
- *puni'cea* (scarlet-flowered). 15. Scarlet. May.
- *puni'ceo flo're-ple'no* (scarlet-double-flowered). 15. Dark red. May.
- *quercifolia* (oak-leaved). White. June. Hanburgh. 1834.
- *regi'na* (Queen Mary's thorn). 30. White. May. Scotland.
- *ro'sea supe'riba* (superb rosy-flowered). 15. Crimson. May.
- *Sibirica* (Siberian). 15. White. May. Siberia.
- *Transylvanica* (Transylvanian). 15. White. May. Transylvania.
- *oxyacanthoides* (oxyacantha-like). 15. White. May. France. 1822.
- *paris'folia* (small-leaved). 15. May. N. Amer. 1704.
- *Flori'da* (Florida). 6. White. May. N. Amer.
- *grossularia'folia* (gooseberry-leaved). 6. White. May.
- *penta'gyna* (five-styled). 15. White. May. Hungary. 1820.
- *Poir'etiana* (Poir'et's). 20. White. May. Hungary. 1810.
- *Priestiana* (Priest's). White. May. 1810.
- *prunellifolia* (prunella-leaved). 20. White. May.
- *prunifolia* (plum-leaved). 20. White. May. N. Amer. 1818. Berries dark red.
- *punctu'ta* (dotted-fruited). 15. White. N. Amer. 1746. Berries red.

- C. punctata au'rea* (golden-fruited). 30. White. May. N. Amer. 1724.
- *brevisp'ina* (short-spined). White. May. N. Amer.
- *nigra* (black-fruited). White. May. N. Amer.
- *nigra stri'cta* (black-fruited-upright). White. May. N. Amer.
- *rubra* (red-fruited). 20. White. May. N. Amer.
- *rubra stri'cta* (upright-red). 20. White. May. N. Amer.
- *purpurea* (purple-fruited). 15. White. May. 1822.
- *Alta'ica* (Altaic). 15. White. May. Altaic Mountains.
- *pyracantha* (evergreen-thorn). 10. White. May. South Europe. 1629.
- *crenulatu* (small-scolloped). 10. White. May. Nepal. 1820.
- *fructu-al'bo* (white-fruited). 10. White. May. 1841.
- *pyris'folia* (pear-leaved). 15. White. June. N. Amer. 1763. Berries yellowish-red.
- *sanguinea* (crimson-fruited). 15. May. Siberia. 1810.
- *spatulata* (spatula-leaved). 15. May. N. Amer. 1805.
- *spinosi'ssima* (spiniest). 15. May. Europe.
- *stipula'ris* (stipulate). Pink. May. Quito. 1843.
- *tanacetifolia* (tansy-leaved). 15. May. Greece. 1789. Berries yellow.
- *glabra* (smooth). 15. May. Germany. 1816.
- *Taurica* (Taurian). 15. May. Taurica. 1800.
- *Virginica* (Virginian). 5. May. Virginia. 1812. Berries green.
- *viridis* (green-fruited). 15. May. Carolina. 1810.

CRATEVA. Garlic Pear. (Named after *Cratæus*, a Greek botanist. Nat. ord., *Capparidæ* [Capparidaceæ]. Linn., 11-Dodecandria 1-Monogynia. Allied to the Common Caper.)

The bark of the roots of the Garlic Pear (*C. gynandra*) blisters like Cantharides. Stove evergreen trees; rich, loamy soil; increased by cuttings in sand, under glass, in bottom-heat.

- C. gynandra* (gynandrous). 12. White. Jamaica. 1789.
- *Roxburghii* (Roxburgh's). 15. White. E. Ind. 1822.
- *tapia* (tapia). 30. White. E. Ind. 1752.
- *tapia'oides* (tapia-like). 20. White. S. Amer. 1820.

CRAWFORDIA. (In honour of Sir John Crawford, governor of Singapore. Nat., ord., *Gentianaworts* [Gentianaceæ]. Linn., 5-Pentandria 2-Digynia.)

There is little doubt that this herbaceous twiner is as hardy as the Gentians, to which it is allied, and like them may be cultivated.

- C. fasciculata* (fascicle-flowered). 4. Blue. August. Himalaya. 1855.

CREPERS or **TRAILERS** are plants which, by having numerous stems and branches resting upon and spreading over the soil's surface, are useful for concealing that would be unpleasing

to the eye. They are also handsome objects in pots suspended from the roof of an appropriate structure, and some, as *Gaultheria procumbens*, are ornamental round the margin of ponds or other water.

CRESCE'NTIA. The Calabash-tree. (Named after *Crescenti*, an old author. Nat. ord., *Crescentiads* [*Crescentiaceæ*]. Linn., 4-Tetrandria 1-Monogynia.)

The flowers of the Calabash-tree (*C. Cuje'te*) are intermediate between Gesnerworts and Bigoniads, and in all the species are produced from the old stems or branches. Stove evergreen trees; a mixture of loam and peat; cuttings of ripened shoots root readily in sand, under glass, in heat.

C. acuminata (pointed-leaved). 20. Green, white. Cuba. 1822.

— *cucurbitina* (gourd-fruited). 10. White. W. Ind. 1733.

— *Cuje'te* (Cujete). 20. White. Jamaica. 1690.

— *macrophylla* (large-leaved). Yellow.

CRESS. *Lepidium sativum*.

Varieties.—There are three varieties: Plain-leaved, which is the one commonly cultivated for salads; Curly-leaved, equally good, and employed, likewise, for garnishing; Broad-leaved, seldom cultivated. See **MUSTARD**.

CRESS ROCKET. *V. ulla*.

CRINUM. (From *krinon*, the Greek name for lily. Nat. ord., *Amaryllids* [*Amaryllidaceæ*]. Linn., 6-Hexandria 1-Monogynia.)

Nearly fifty species of Crinum, with numerous varieties, and many cross-bred seedlings, have been described by Dr. Herbert. Many of them are the most beautiful of this order. *C. longiflorum* is perfectly hardy in England if planted six or eight inches deep. It will grow in water, but better on the margins of lakes, ponds, or rivulets. The whole family delight in strong, rich loam, and an abundance of water when they are growing. Bulbous plants of great beauty; rich loam, peat, and sand; readily increased by offsets, and many by seeds.

HARDY.

C. Cape'nse (Common Cape). 2. Pink. July. Cape of Good Hope. 1752.

— *Herberti* (Herbert's). 2. Pink. September. Cape of Good Hope. 1774.

GREENHOUSE.

C. angustifolium (narrow-leaved). 2. White. June. N. Holland. 1824.

— *australe* (southern). White. April. Australia. 1791.

— *crassifolium* (thick-leaved). 2. Pink. September. Cape of Good Hope. 1774.

— *flaccidum* (flabby). 2. July. N. Holland. 1816.

— *longiflorum* (long-flowered). 2. Purple. July. Cape of Good Hope. 1816.

— *longifolium* (long-leaved). 3. White. Bengal. 1810.

— *lorifolium* (strap-leaved). 5. White. July. Pegu. 1819.

— *macrocarpum* (large-fruited). 1½. July. Pegu. 1820.

C. Mauritiana (Mauritian). 4. Pink. March. Mauritius. 1812.

— *Moluccanum* (Molucca). 2. Pink. July. Moluccas. 1819.

— *multiflorum* (many-flowered). 2. White. 1822.

— *pedunculatum* (long-flower-stalked). 3. White. July. N. S. Wales. 1790.

— *plicatum* (plaited). 2. White. July. China. 1818.

— *riparium* (river-bank). 2. Pink. July. Cape of Good Hope. 1816.

STOVE.

C. Algoe'nse (Algoa Bay). Red, white. August. Cape of Good Hope. 1826.

— *ambile* (lovely). 5. Purple. July. E. Ind. 1810.

— *America'nium* (American). 2. White. July. S. Amer. 1752.

— *ame'nium* (pleasing). 2. White. E. Ind. 1810.

— *la've* (smooth-edged). 2. White. E. Ind. 1819.

— *angustifolium* (tall-narrow-leaved). 2. White. E. Ind. 1819.

— *angustum* (narrow). 1. Pink. July. Mauritius. 1818.

— *anomalum* (anomalous). 1. White. July. China. 1822.

— *aquatium* (water). 4. Pink. August. Cape of Good Hope. 1820.

— *arenarium* (sand). 2. White. May. N. Holland. 1822.

— *blaudum* (mild-looking). 2. Blue. May. N. Holland. 1821.

— *Asiatium* (Asiatic. *Poison-bulb*). 3. White. July. China. 1732.

— *Australaicum* (Australian). White. June. Australia. 1838.

— *brachyandrum* (short-stamened). 5. White. July. N. Holland. 1819.

— *brachyne'ma* (short-stamened). White. E. Ind. 1840.

— *bractatum* (bracted). 2. White. July. Mauritius. 1810.

— *angustifolium* (narrow-leaved). 2. White. July. Mauritius. 1810.

— *brevilimbium* (short-fringed). 2. July. Pacific Islands. 1820.

— *Broussoneti* (Broussonet's). ½. Red, white. July. Guinea. 1740.

— *Ca'ffrum* (Caffre). Red, white. September. Cape of Good Hope. 1825.

— *canaliculatum* (channelled-leaved). 4. White. July. E. Ind. 1810.

— *canaliculatum* (channelled-leaved). 2. July. E. Ind. 1820.

— *Careyanum* (Carey's). 2. White. July. Mauritius. 1821.

— *Commelini* (Commelin's). 2. White. July. S. Amer. 1798.

— *confertum* (crowded). 2. White. June. N. Holland. 1822.

— *cruentum* (bloody-flowered). 4. Red. July. E. Ind. 1810.

— *declinatum* (curved-down). 2. White. May. Silhet. 1818.

— *deflexum* (defixed). 2. White. August. E. Ind. 1810.

— *distichum* (two-rowed). 2. White, purple. June. Guinea. 1774.

— *elegantum* (elegant). 4. White. September. E. Ind. 1823.

— *ensifolium* (sword-leaved). 3. White. Pegu. 1819.

— *erubescens* (blushing). 2. Pale white. July. W. Ind. 1789.

- C. crube'scens Barbice'nsæ* (Barbice). 2. White. July. Barbice. 1819.
 — *Corantynum* (Corantyne). Pale red. June. S. Amer. 1820.
 — *glabrum al'bum* (smooth-white). White. June. S. Amer. 1820.
 — *glabrum ru'brum* (smooth-red). Red, white. June. Maranham. 1824.
 — *ma'jus* (larger). 3. Red, white. July. S. Amer. 1789.
 — *mi'nus* (smaller). 1½. Red, white. July. S. Amer. 1789.
 — *octoflo'rum* (eight-flowered). White. June. Spanish Main. 1820.
 — *rubril'mbum* (red-fringed). Red. June. S. Amer.
 — *viridifol'ium* (green-leaved). 3. White. July. Demerara. 1819.
 — *erythrophy'llum* (red-leaved). 2. Red, white. July. E. Ind. 1825.
 — *esalta'tum* (lofty). 3. E. Ind. 1820.
 — *Forbe'si* (Forbes's). Red. White. July. Delagoa Bay. 1824.
 — *formosum* (beautiful). 2. July. Brazil. 1820.
 — *giga'nteum* (giant). 3. White. July. Guinea. 1792.
 — *hu'mile* (low). 1. White. October. 1822.
 — *insigne* (noble). 3. Pink. November. E. Ind. 1819.
 — *La'ncei* (Lance's). Red, white. July. Surinam. 1825.
 — *latifol'ium* (broad-leaved). 3. Pink. July. E. Ind. 1806.
 — *Lindleyanum* (Lindley's). White, purple. June. Maranham. 1824.
 — *Loddigesianum* (Loddige's). White, purple. August. Mexico.
 — *Paxto'ni* (Paxton's). Red, white. June. E. Ind.
 — *pediola'tum* (pedicellate). White. Purple. July. S. Africa. 1792.
 — *specta'bile* (showy). White. July. Sierra Leone.
 — *prate'nsæ* (meadow). White. June. E. Ind. 1810.
 — *procerum* (tall). 3. White. July. Pegu. 1820.
 — *purpura'scens* (purplish). Purple. June. Fernando Po. 1826.
 — *revolutum* (rolled-back). 1½. White. June. Maranham. 1823.
 — *ri'gidum* (stiff). White. June. E. Ind. 1810.
 — *sca'brum* (rough). 4. Pink. May. Azores. 1810.
 — *Si'nicum* (Chinese). 1. White. China. 1819.
 — *speciosum* (showy). 2. Pink. July. E. Ind. 1819.
 — *stri'ctum* (straight). 1½. White. September. 1824.
 — *subme'rsum* (submerged). 1½. Pink. July. Rio Janeiro. 1820.
 — *Sumatra'num* (Sumatra). 3. White. July. Sumatra. 1810.
 — *undula'tum* (waved-leaved). 1½. White. November. Maranham. 1824.
 — *venu'stum* (graceful). 1. White, red. July. E. Ind. 1821.
 — *verecu'ndum* (ruddy). 2. Pale red. July. E. Ind. 1820.
 — *yuccæoi'des* (yucca-like). 2. Red, white. June. Guinea. 1740.
 — *Zeyla'nicum* (Ceylon). 3. Purple. July. Ceylon. 1771.
 — *longistyl'ium* (long-styled). Pale red. July. E. Ind. 1806.

CRISTA'RIA. (From *crista*, a crest; the form of the seed-vessel. Nat. ord.,

Mallowworts [Malvaceæ]. Linn., 16-Monadelphica 8-Polyandria. Allied to Sida.)

A very neat little hardy herbaceous perennial. Peat; cuttings during the summer months.

C. coccineæ (scarlet). ½. Scarlet. August. Missouri. 1811.

CRI'THUM. Samphire. (From *krithe*, barley; resemblance of the seeds to barley. Nat. ord., Umbellifers [Apiaceæ]. Linn., 5-Pentandria 2-Digynia. Allied to Seseli.)

Samphire (*C. maritimum*) is excellent in pickles.

C. latifol'ium (broad-leaved). 1½. Yellow. July. Canaries. 1780. Greenhouse evergreen.

— *maritimum* (sea). 1. White. August. Britain. Hardy herbaceous.

Culture.—*Cri'thum maritimum*, though a native of the sea-shore, may be cultivated successfully in the garden.

Soil.—It requires a sandy, rich soil and the north side of a wall.

Propagation.—The roots may be planted, or the seed sown, in April; the only cultivation required being to keep the plants free from weeds, and to water it about twice a week with water containing half an ounce of guano, and one ounce of salt per gallon.

CROCKING is putting a piece of potsherd over the hole at the bottom of a flower-pot, previously to adding the drainage, &c.

CROC'US. (A name adapted from Theophrastus. Nat. ord., Irids [Iridaceæ]. Linn., 3-Triandria 1-Monogynia.)

Hardy bulbs. The saffron of the shops is the dried stigmas of *C. sativus*. The Sicilian saffron is from those of *C. odoratus*.

C. albiflorus (white-flowered). ½. White. February. Austria.

— *annulatus* (ringed). ½. White. March. South-East Europe. 1629.

— *Adamicus* (Adam's). ½. Purple. March. Caucasus.

— *albus* (white-flowered). White. March. Opischina.

— *bisflorus* (two-flowered). ½. White. March. Crimea. 1629.

— *bisflorus stigmato'sus* (long-styled). ½. White. March.

— *cerule'scens* (bluish). Bluish. February. Naples.

— *estriatus* (unstreaked-sepals). Lilac. February. Florence.

— *Grecus* (Grecian). February. Greece.

— *nubigena* (cloudy). White. March. Mount Gargarius. 1845.

— *purpura'scens* (purplish-flowered). Purple. March. Dalmatia.

— *pusillus argenteus* (silvery). ½. White. February. Pisa.

— *pusillus lineatus* (lined). February. Parma.

C. annulatus pusillus Tenoria'nus (Tenore's).
 1. White. February. Naples.
 — *Tauricus* (Taurian). February. Odessa.
 — *argenteus* (silvery). White, brown. February.
 — *Asturicus* (Asturian). 1. Purple. October.
 Asturia. 1842.
 — *aurus* (golden). 1. Yellow. February. Greece.
 — *biflorus* (two-flowered). 1. White. February.
 Crimea. 1629.
 — *Borya'nus* (Bory's). White. September. Morea.
 — *Byzantinus* (Byzantine). September. Hun-
 gary.
 — *Cambesedius* (Cambesedes'). White. Ma-
 jorca.
 — *cancellatus* (cross-barred). Mount Taurus.
 — *Kotschia'nus* (Kotschy's). Violet. Mount
 Taurus.
 — *margaritaceus* (pearly). Purple. Mount
 Taurus.
 — *Mazzidricus* (Mazziari's). White, yellow.
 Caria.
 — *Cartwrightia'nus* (Cartwright's). 1. White,
 purple. September. Candia.
 — *Creticus* (Cretan). Pale yellow. October.
 Candia.
 — *leucodius* (whitish). White.
 — *Caucasicus* (Caucasian). White, blue. Fe-
 bruary. Caucasus.
 — *chrysanthus* (golden-flowered). 1. Golden.
 February. Rhodope.
 — *Clusia'nus* (Clusius's). September. Portugal.
 1835.
 — *Damascenus* (Damascus). September. Da-
 mascus. 1844.
 — *Keischeria'nus* (Keischer's). White. Smyrna.
 — *Garga'ricus* (Gargarian). 1. Golden yellow.
 March. Mount Gargarius.
 — *Hadriaticus* (Hadriatic). October.
 — *Chrysobolonicus* (Chrysobelonian). Oc-
 tober. Chrysobeloni.
 — *Saundersia'nus* (Saunders's). September.
 — *Imperat'nius* (Imperato's). 1. Lilac. Fe-
 bruary. Naples. 1830.
 — *insula'ris* (island). September. Corsica.
 — *geminiflorus* (twin-flowered). September.
 — *ma'ior* (larger). September.
 — *medius* (medium). September.
 — *minimus* (least). Violet. September.
 — *la'cteus* (cream-coloured-flowered). 1. Pale
 yellow. March.
 — *lagenast'rus* (bottle-flowered). 1. Red, yellow.
 February. Greece.
 — *aurus* (golden). 1. Golden yellow.
 March. Greece.
 — *aurus albus* (white-flowered). 1. White.
 March.
 — *aurus la'cteus* (cream-coloured). 1.
 Cream. March. Greece. 1629.
 — *aurus la'cteus penicillatus* (milky-pen-
 cilled). 1. Pale cream. March.
 — *aurus lutescens* (yellowish). 1. Pale
 yellow. March.
 — *aurus pallidus* (pale-flowered). 1. Pale
 sulphur. March.
 — *aurus sulphurascens* (pale sulphur). 1.
 March.
 — *aurus sulphureus* (sulphur-coloured). 1.
 Pale yellow. March. South Europe. 1629.
 — *aurus trilineatus* (three-lined). 1. Yel-
 low, blue. March.
 — *en'didus* (white). White. March. Mount
 Gargarius.
 — *flavus* (yellow). 1. Pale yellow. February.
 Greece.
 — *Hæmicus* (Hæmus). March. Mount
 Hæmus.

C. lagenast'rus Landeria'nus (Lander's). Yel-
 low. March.
 — *Syriacus* (Syrian). 1. Yellow. March.
 Syria.
 — *Olivieria'nus* (Olivier's). Yellow. March. Chios.
 — *stellaris* (starry). 1. Yellow. March.
 — *striatus* (streaked). 1. Yellow. March.
 South Europe. 1629.
 — *longiflorus* (long-flowered). February. Italy.
 1843.
 — *luteus* (common-yellow). 1. Yellow. Fe-
 bruary. Turkey. 1629.
 — *Masiacus* (Mæisian). 1. Yellow. February.
 Greece. 1629.
 — *medius* (intermediate). September. Liguria.
 — *minimus* (smallest). 1. Purple. February.
 1629.
 — *nivalis* (snowy). February. Morea.
 — *nudiflorus* (naked-flowered). 1. Violet. Sep-
 tember. England.
 — *odoratus* (scented). 1. September. Naples.
 1830.
 — *longiflorus* (long-flowered). 1. October.
 — *Melitenis* (Maltese). 1. October. Malta.
 — *Pallasii* (Pallas's. Autumnal). 1. Lilac. Sep-
 tember. Crimea. 1821.
 — *pulchellus* (neat). Light blue. February.
 1843.
 — *pusillus* (dwarf). 1. White, blue. February.
 Naples. 1824.
 — *Pyrena'us* (Pyrenean). 1. Purple. September.
 England.
 — *reticulatus* (netted). 1. Blue. February.
 Crimea.
 — *alibicus* (cloth of silver). 1. Whitish.
 March. Odessa.
 — *Angyrensis* (Angora). 1. Yellow. March.
 Angora.
 — *auratus* (cloth of gold). 1. Gold.
 March.
 — *auratus immaculatus* (spotless). 1.
 Yellow. March.
 — *auratus reflexus* (bent-back). 1. Yel-
 low-striped. March. Crimea. 1605.
 — *Dalmaticus* (Dalmatian). 1. April.
 — *variegatus* (variegated). 1. April.
 — *Salzmannia'nus* (Salzmann's). Africa. 1806.
 — *sativus* (cultivated. Saffron). 1. Violet. Sep-
 tember. England.
 — *serotinus* (late. Autumnal). 1. Violet. Octo-
 ber. South Europe. 1629.
 — *Sibthorpianus* (Sibthorp's).
 — *pulchricolor* (fair-coloured). May.
 Olympia.
 — *Stauricus* (Stauric). White. June.
 Trebizond.
 — *speciosus* (showy). Purple. September.
 Hungary.
 — *Caucasicus* (Caucasian). Purple. Sep-
 tember. Caucasus.
 — *la'xior* (looser). Purple. September.
 Caucasus.
 — *Transylvanicus* (Transylvania). Purple.
 September. Transylvania.
 — *striatus* (channelled). 1. White. February.
 1820.
 — *sulphureus* (sulphur-coloured). 1. Yellow.
 February. South Europe. 1629.
 — *flavus* (pale yellow). 1. Pale yellow.
 February. South Europe. 1629.
 — *Susia'nus* (Susian). 1. Yellow. February.
 Turkey. 1605.
 — *Suteria'nus* (Suter's). 1. Bright yellow. March.
 Angora.
 — *Thomasii* (Thomas's). 1. Blue. September.
 Naples. 1830.

- C. Thoma'sii* (smooth-leaved).
 — *princeps* (chief. Fringed-leaved).
 — *Tournefortianus* (Tournefort's). October.
 Greek Archipelago.
 — *valleicola* (valley). White. October. Tre-
 bizon Alps.
 — *variegatus* (variegated). $\frac{1}{2}$. Variegated. Fe-
 bruary. Levant. 1829.
 — *vernus* (spring). $\frac{1}{2}$. Purple. February. Eng-
 land.
 — *albiflorus* (white-flowered). $\frac{1}{2}$. White.
 February. Carinthia.
 — *aprilis* (April). $\frac{1}{2}$. Violet. April.
 — *elaticor* (taller). $\frac{1}{2}$. February. Alps.
 — *leucorhynchus* (white-beaked). $\frac{1}{2}$. White,
 blue. February.
 — *Neapolitanus* (Neapolitan). $\frac{1}{2}$. Purple,
 blue. February. Naples.
 — *obovatus* (reversed-egg-shaped). $\frac{1}{2}$. Pur-
 ple. February. South Europe.
 — *parviflorus* (small-flowered). $\frac{1}{2}$. White.
 February. Splügen.
 — *pictus* (painted). $\frac{1}{2}$. Pale white. February.
 — *versicolor* (party-coloured). $\frac{1}{2}$. Purple. Febru-
 ary. South Europe. 1639.

CROCUS CULTURE.—*Propagation:* by *Seed.*—Sow the seed in October, in a prepared bed of light, rich earth, in an open situation, covering it a quarter of an inch. The seedlings will come up in the spring, and should be kept well weeded. When the leaves decay, clear them away, and spread a thin coat of fresh, light earth over the roots. Allow them to remain another season, and then, when the leaves decay, take up the bulbs carefully, sifting the soil so as to find even the smallest. In August prepare a bed of fresh, rich earth, turning it over two or three times to mellow and pulverise. About the middle of September, on a dry day, level the bed, and draw drills across it four inches apart; then plant the young bulbs in the drills three inches asunder, pressing them down gently into the soil; and, when all are planted, level the ridges of the drills with a rake carefully down. In this bed they should remain two years. The second year most of them will flower; and, when in bloom, the colours should be marked, to enable you to separate them into their colours when they are taken up. Any new fine varieties should be especially taken care off.

By Offsets.—When the leaves decay, in the summer, take up the bulbs, keeping them in their various sorts; separate the large-flowering bulbs from the small offsets, and plant the latter in a bed by themselves, in the same way as is described above for seedlings. In two years take them up, sort the large roots out again, and replant the small ones.

Soil.—The crocus delights in a dry situation, and a rich, light, sandy soil. In such a place and soil it flowers profusely, and produces large roots; but in a wet, poor soil it dwindles away.

Culture.—October is the best month for planting, though it may be prolonged to the middle of December. Take the roots up every second year, planting the offsets as described above.

Insects.—Slugs are their chief enemy, which may be destroyed by watering the beds or clumps with lime-water.

Diseases.—The bulbs sometimes become like a mass of starch or meal, and then will not grow. There is no remedy for bulbs actually diseased, but they ought to be carefully picked out, and not mixed with the general stock, for fear of infection. It seems to be caused by an internal fungus.

CROPPING (MIXED) is growing two or more crops together, one of which may be either drawn young, so as to be out of the other's way before it gets high enough to be injured, or one of which benefits the other by shading it. The object of mixed cropping is to obtain the largest amount of produce in the shortest time from a given space. The subject cannot be treated in detail within these limited pages; and we must, therefore, refer our readers to an essay on the subject in *The Cottage Gardener*, v. 274. See **ROTATION OF CROPS.**

CROSSA'NDRA. (From *krossos*, a fringe, and *aner*, an anther; fringed anthers, or pollen-bags. Nat. ord., *Acanthads* [Acanthaceæ]. Linn., 14-*Tetradynamia* 2-*Angiospermia*. Allied to *Justicia*.)

A showy stove evergreen shrub; peat and loam; cuttings root readily in sand, in bottom-heat, at any season, under glass.

C. flava (yellow-flowered). $\frac{1}{2}$. Yellow. January. W. Africa. 1852.

— *undulatifolia* (wave-leaved). $1\frac{1}{2}$. Orange, scarlet. March. E. Ind. 1800.

CROTALA'RIA. (From *krotalon*, a castanet, or hand-rattle; the seeds rattle in the pod if shaken. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 16-*Monadelphia* 6-*Decandria*. Allied to the Lupines.)

Notwithstanding the great number of *Crotalaria*s, with their gay-coloured pea-flowers, they are not much prized by gardeners, owing to the difficulty of preserving them from the attacks of the red spider. Seed; perennial kinds easily from cuttings in sand, under glass; loam and peat.

STOVE ANNUALS, &c.

C. acuminata (pointed-leaved). 1. Yellow. July. Cape of Good Hope. 1820. Half-hardy.

- C. ala'ta* (winged). 1. Pale yellow. July. Nepal. 1818. Biennial.
 — *angula'ta* (angled). 1. Yellow. June. S. Amer. 1700.
 — *biala'ta* (two-winged). 1. Yellow. June. 1820.
 — *bifa'ria* (two-rowed). 3. Yellow. July. E. Ind. 1817.
 — *Burma'n'ni* (Burmans's). 1. Yellow. July. E. Ind. 1800.
 — *calyci'na* (large-calyled). 1. Blue. June. E. Ind. 1816.
 — *Cube'n'sis* (Cuba). 1. Yellow. July. Cuba. 1820.
 — *ful'va* (tawny). 1. Yellow. June. E. Ind. 1817.
 — *glau'ca* (milky-green). 1. Yellow. July. Guinea. 1824.
 — *hirsu'ta* (hairy). 1. Yellow. July. E. Ind. 1818.
 — *Langsdo'r'fii* (Langsdorf's). 1. Yellow. June. 1820.
 — *microphy'lla* (small-leaved). 3. Yellow. July. Arabia. 1820. Trailer.
 — *ova'tis* (oval). 1. Yellow. July. Carolina. 1810. Half-hardy.
 — *pu'mila* (dwarf). 3. Yellow. June. Cuba. 1823. Trailer.
 — *purpura'scens* (purplish). 1. Purple. July. Madagascar. 1825.
 — *Pu'rshii* (Pursh's). 1. Yellow. June. N. Amer. 1800. Half-hardy.
 — *Senegale'n'sis* (Senegal). 1. Yellow. June. Senegal. 1819.
 — *specta'bilis* (showy). 14. Purple. July. E. Ind. 1820.
 — *stipula'ris* (large-stipuled). 1. Yellow. July. Cayenne. 1823.
 — *tria'ntha* (three-flowered). 2. Yellow. June. Mexico. 1824.
 — *tubero'sa* (tuberous). 1. Purple. June. Nepal. 1821. Greenhouse.
 — *verruco'sa* (warted). 1. Blue. June. W. Ind. 1731.
 — — *acumina'ta* (pointed-leaved). 1. Blue. July. E. Ind. 1731.
 — *villo'sa* (soft-haired). 1. Yellow. June. Cape of Good Hope. 1824. Half-hardy.

GREENHOUSE EVERGREENS.

- C. argen'tea* (silvery). 1. Yellow. June. Cape of Good Hope. 1823.
 — *dicho'toma* (forked). 1. Yellow. July. Mexico. 1824.
 — *obscu'ra* (obscure). 2. Yellow. June. Cape of Good Hope. 1820.
 — *Theba'ica* (Theban). 2. Yellow. June. Egypt. 1818.

STOVE EVERGREENS.

- C. anagyroi'des* (anagryris-like). 6. Yellow. July. Trinidad. 1823.
 — *anthylloi'des* (anthyllis-like). 4. Yellow. August. E. Ind. 1789.
 — *Berteria'na* (Berter's). 2. Yellow. June. W. Ind. 1818.
 — *bractea'ta* (large-bracted). 4. Yellow. July. E. Ind. 1820.
 — *Bro'wnea* (Brown's). 4. Yellow. July. Jamaica. 1816.
 — *cajanifo'lia* (cajan-leaved). 6. Yellow. August. S. Amer. 1824.
 — *Chine'n'sis* (Chinese). 2. Yellow. June. China. 1818.
 — *cytiso'i'des* (cytissus-like). 3. Yellow. July. E. Ind. 1826.
 — *folio'sa* (leafy). 3. Yellow. June. E. Ind. 1818.

- C. frutico'sa* (shrubby). 2. Yellow. June. Jamaica. 1716.
 — *linifo'lia* (flax-leaved). 1. Yellow. July. Nepal. 1820.
 — *medicagi'neu* (medicago-like). 1. Yellow, green. June. E. Ind. 1816.
 — *No'va Holla'ndia* (New Holland). 2. Purple. June. N. Holland. 1823. Herbaceous perennial.
 — *panicula'ta* (panicked). 3. Yellow. June. Java. 1820.
 — *pell'i'ta* (furred). 1. Yellow. July. Jamaica. 1820.
 — *pe'ndula* (hanging-down). 5. Yellow. August. Jamaica. 1820.
 — *procu'mbens* (lying-down). 1. Yellow. June. Mexico. 1823. Herbaceous perennial.
 — *Roxburghia'na* (Roxburgh's). 2. Yellow. June. E. Ind. 1820.
 — *stri'a'ta* (streaked-flowered). 3. Yellow, red. Mauritius. 1831.
 — *tenuifo'lia* (fine-leaved). 2. Yellow. June. E. Ind. 1816.
 — *tu'rgida* (swollen). 3. Yellow. July. 1820.
 — *virga'ta* (twiggly). 3. Yellow. June. E. Ind. 1816.

CRO'TON. (From *kroton*, a tick; referring to the appearance of the seeds. Nat. ord., *Spurgeworts* [Euphorbiaceæ]. Linn., 21-Monæcia 10-Monadelphia. Allied to *Jatropha*.)

The most powerful of purgatives is *Croton oil*, obtained from the seeds of *C. Tiglium*. Stove evergreen shrubs, except *C. rosmarinifo'lia*; loam and peat; cuttings root readily in sand, under glass, in heat.

- C. cleute'ria* (Sea-side balsam). 6. White, green. July. Jamaica. 1748.
 — *glabe'lla* (smoothish. *Laurel-leaved*). 6. White, green. Jamaica. 1778.
 — *linea'ris* (narrow-leaved). 6. White, green. July. W. Ind. 1773.
 — *pi'cta* (painted). 4. White, green. July. E. Ind. 1810.
 — *rosmarinifo'lia* (rosemary-leaved). 8. June. N. Holland. 1824. Greenhouse.
 — *Tig'lium* (Tiglium). 10. White, green. E. Ind. 1796.
 — *variega'ta* (variegated). 10. White, green. E. Ind. 1804.
 — — *eri'spa* (curled). 6. White, green. July. E. Ind. 1804.
 — — *longifo'lia* (long-leaved). 2. White, green. India. 1847.
 — — *me'dia* (intermediate). 6. White, green. July. E. Ind. 1804.

CROWBERRY. *Empe'trum ni'grum*.

CRO'WEA. (Named after J. Crowe, a British botanist. Nat. ord., *Rueworts* [Rutaceæ]. Linn., 10-Decandria 1-Monogynia. Allied to *Boronia*.)

Greenhouse evergreen shrubs, from New Holland. Cuttings root readily in sand, under glass; loam and peat.

- C. elliptica* (oval-leaved). 3. Pink. July. 1845.
 — *latifo'lia* (broad-leaved). 3. Purple. July. 1825.
 — *sali'gna* (willow-leaved). 3. Purple. September. 1790.
 — *stri'cta* (upright). 2. Pink. 1845.

CROWFOOT. *Ranu'nculus*.

CRUCIFERS. Crossworts. Flowers are called crucifers when composed of four petals placed opposite each other, like those of the cabbage and turnip. They include all those plants arranged by Linnæus in the 15th class of his system *Tetradynamia*.

CRUCIANE'LLA. Crosswort. (From the diminutive of *crux*, a cross; referring to the way the leaves are arranged. Nat. ord., *Stellates* [Galiaceæ]. Linn., 4-*Tetrandria* 1-*Monogynia*. Allied to Rubia.)

The leaves of all the plants in this order are produced in whorls along the stem. Hence the name of the order, which has been reared on the ruins of Rubiaceæ, which is now cancelled. The greenhouse species thrive well in loam and peat, and readily increase by cuttings; the hardy perennial kinds by seed and division, in garden-soil. There are several annual species, but not worth cultivating.

GREENHOUSE EVERGREENS.

C. America'na (American). 1. Yellow. July. S. Amer. 1780.
— *maritima* (maritime). 1. Yellow. July. France. 1610.

HARDY HERBACEOUS.

C. ano'mala (anomalous). 1. Yellow. July. Caucasus. 1820.
— *a'spera* (rough). Greenish-yellow. July. Iberia. 1837.
— *chlorosta'chys* (greenish-yellow-spiked). Greenish-yellow. July. Persia. 1837.
— *Gila'nica* (Ghilan). Yellow. July. Persia. 1837.
— *glomeru'la* (crowded). 1. Yellow. July. Iberia. 1824.
— *pube'scens* (downy). 1. Purple. July. Candia. 1799.
— *stylo'sa* (large-styled). 1. Pink. July. Persia.
— *suave'olens* (sweet-smelling). 1. Yellow. July. Russia. 1838.

CRYPTOCHI'LUS. (From *kryptos*, hidden, and *cheilos*, a lip; the lip, or labellum, being partly hid by the sepals. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-*Gynandria* 1-*Monandria*. Allied to *Acanthophippium*.)

Stove orchid; root division; soil, rough fibry peat and rotten wood.

C. sangu'nea (blood-coloured). 1. Scarlet. June. Nepaul.

CRYPTOCO'RYNE. (From *kryptos*, hidden, and *koryne*, a club; the club-shaped spadix, or spike, in the centre of the flower, is hidden by the hooded spathe peculiar to this order. Nat. ord., *Arads* [Araceæ]. Linn., 21-*Monæcia* 2-*Dian-dria*. Allied to Arum.)

Stove herbaceous perennial; divisions, and seeds when obtainable; loam and peat. Summer temp., 60° to 80°; winter, 45° to 55°, and dry.

C. citia'ta (hair-fringed). Green, purple. May. E. Ind. 1824.

CRYPTOGRA'MMA. A spurious name for

Sir W. Hooker's *Parke'ria*, a Fern published in 1825 in Hooker's *Exotic Flora*, page 147. See *PARKE'RIA*.

CRYPTOME'RIA. Japan Cedar. (From *kryptos*, hidden, and *meris*, part; the structure of all the parts of the flower being hidden, or not easily understood. Nat. ord., *Conifers* [Pinaceæ]. Linn., 21-*Monæcia* 10-*Monadelphia*. Allied to *Taxodium*.)

A splendid evergreen tree, from 60 to 100 feet high, from the north of China, where it grows in damp situations. Seeds imported; some have ripened in Britain; cuttings in sandy soil, under a hand-light; a pure loam seems to suit it best.

C. Japo'nica (Japanese). 100. May. Japan. 1844.
— — *na'na* (dwarf). North China.

CRYPTOPHRA'GMUM. (From *kryptos*, hidden, and *phragma*, a division or partition; the flowers partly concealed by the leafy bractes. Nat. ord., *Acanthads* [Acanthaceæ]. Linn., 2-*Dian-dria* 1-*Monogynia*. Allied to *Justicia*.)

Stove evergreen shrub. Cuttings, in April, of young shoots, in sandy loam, under glass, and in bottom-heat; peat and loam. Summer temp., 60° to 80°; winter, 50°.

C. venu'stum (beautiful). 5. September. Purple. Bengal.

CRYPTOSTE'GIA. (From *kryptos*, hidden, and *steye*, a covering; the cup, or corolla, is hidden. Nat. ord., *Asclepiads* [Asclepiadaceæ]. Linn., 5-*Pentandria* 2-*Digynia*. Allied to *Periploca*.)

Climbing stove evergreens. Loam and peat; cuttings root readily in sand, under glass, in heat.

C. grandiflora (large-flowered). 6. Pink. June. India. 1818.

— *Madagascari'ensis* (Madagascar). 10. Pink. July. Madagascar. 1826.

CRYPTOSTE'MMA. (From *kryptos*, hidden, and *stemma*, a crown; the crown of the flower hidden. Nat. ord., *Composites* [Asteraceæ]. Linn., 19-*Syngenesia* 3-*Frustanea*. Allied to *Arctotis*.)

Tender annuals, from Cape of Good Hope, requiring to be sown on a gentle hotbed; when large enough may be potted two or three plants in a pot, and protected again in the same way, and planted out in the open border the beginning of June.

C. calendula'ceum (marigold-flowered). 1. Yellow. July. 1752.

— *hypochondri'acum* (melancholy). 1. Yellow. July. 1731.

— *runcina'tum* (saw-leaved). 1. Yellow. July. 1794.

CUCKOO FLOWER. *Carda'mine prate'nsis* and *Ly'chnis flos-cu'culi*.

CUCKOO-SPIT. See *TETTIGONIA* *SPU-MARIA*.

CUCULLIA VERBASCI. Mullein Moth. This is the parent of a greenish-white

or slaty-coloured caterpillar, found from the end of May until August, feeding on the various species of mullein (*Verbascum*) and figwort (*Scrophularia*). On each segment of this caterpillar are four large black dots, sometimes separate, and sometimes running together; there are smaller black dots along the sides, and a double row of yellow spots on the back,



with others on the sides. The head is yellow, spotted with black. This moth appears commonly in May. It is about two inches across the expanded forewings, which are of a dark reddish-brown colour, clouded and lined with black, and with a large white spot on each resembling the figure 3, as shown in the annexed drawing. The hindwings are also reddish-brown, but paler, and sometimes almost white. The female lays her eggs upon the mulleins, and their relative species of plants, which eggs are hatched in a few days if the weather be warm. The caterpillars, when of full growth, descend into the ground at the roots of the plants on which they have been feeding, where they form cocoons of half-rotted leaves and earth, so firmly bound together as to resemble small, hard clods. They remain in the pupa state until the following May, or even for two years.

CUCUMIS. Cucumber. (From *cucumis*, the Latin for cucumber. Nat. ord., *Cucurbitaceæ*. Linn., 21-*Monæcia* 10-*Monadelphica*.)

Half-hardy trailing annuals. The *C. colocynthis* produces the Colocynth of medicine. The whole of the species require to be sown in hotbeds, and, when of sufficient strength, to be planted out either in frames or under hand-glasses.

C. angurta (round-prickly). 2. Yellow. July. Jamaica. 1692.

— *Citrullus* (Citrul). 6. Yellow. June. S. Amer. 1597.

— *Ju'ce* (water-melon). 6. Yellow. July. 1597.

— *Paste'ca* (Pasteque cucumber). 6. Yellow. July. 1597.

C. colocynthis (bitter colocynth). 6. Yellow. June. Cape of Good Hope. 1551.

— *deliciosus* (delicious). 4. Yellow. July. E. Ind. 1818.

— *Jamaicensis* (Jamaica). 4. Yellow. July. Jamaica. 1824.

— *Maderaspatanus* (Madras). 3. Yellow. July. E. Ind. 1808.

— *me'lo* (melon). 4. Yellow. July. 1570.

— *Cantalupa* (Cantalupe). 4. Yellow. July. 1570.

— *Melitensis* (Maltese). 4. Yellow. July. 1570.

— *reticulatus* (netted). 4. Yellow. July. 1570.

— *momordica* (elaterium-like). 4. Yellow. July. E. Ind. 1820.

— *muricatus* (point-covered). 4. Yellow. July. E. Ind. 1817.

— *sativus* (common cultivated). 4. Yellow. August. E. Ind. 1597.

— *albus* (white). 4. Yellow. July.

— *fastigiatus* (peaked). 4. Yellow. July.

— *flavus* (yellow). 4. Yellow. July.

— *variegatus* (variegated). 4. Yellow. July.

— *viridis* (green). 4. Yellow. July. E. Ind. 1597.

— *utilissimus* (most useful). 4. Yellow. July. E. Ind. 1820.

CUCUMBER. *Cucumis sativus*.

Varieties.

1. Early short green prickly. Fruit 4 inches long.

2. Early long green prickly. 7 in.

3. Most long green prickly. 9 in.

4. Early green cluster. 6 in.

5. White Dutch prickly. 6 in.

6. Long smooth green Turkey. 10 in.

7. Large smooth green Roman. 10 in.

8. Flanegans. 15 in.

9. Russian. 12 in.

10. White Turkey. 15 in.

11. Nepaul. 17 in.

12. Fluted (from China). 9 in.

13. The Snake. 12 feet.

14. Brownston hybrid. 15 in.

15. Victory of England. 21 in.

16. Ringleader. 15 in.

17. Pratt's hybrid. 18 in.

18. Sion House. 9 in.

19. Duncan's Victoria. 28 in.

20. Allen's Victory of Suffolk. 24 in.

21. Victory of Bath. 17 in.

22. Prizefighter. 16 in.

The *Early short prickly* is often preferred for the first crop, as being a very plentiful bearer, quick in coming into production, and the hardiest of all the varieties. The *Early long prickly* is a hardy, abundantly-bearing variety, but not quick in coming into production. It is generally grown for main crops. The *Most long prickly* is a hardy good

bearer. There is a white sub-variety. The *Early green cluster* is a very early bearer. It is chiefly characterized by its fruit growing in clusters. The whole plant grows compact, and is well suited for hand-glass crops. The *White Dutch prickly* has an agreeable flavour, though differing from most of the others. It comes quickly into bearing. The other varieties are slow in coming into production, and are chiefly remarkable for their great size. The *Nepaul* often weighs twelve pounds, being occasionally eight inches in diameter. It is a native of Calcutta. The *Snake cucumber* is very small in diameter. *Victory of England* is a favourite variety at Ipswich for early forcing. It is prolific, and the best black-spined kind of that town. Nos. 14, 16, 17, and 18 have been awarded many prizes. They are not abundant bearers; but their fruit is very handsome, averaging a length of sixteen inches, and a diameter of one inch and three quarters.

Standard of Merit.—Length, not less than twelve inches. Diameter, one-ninth of the length. Colour, dark green. Spines, black and numerous. Bloom, unremoved. Circumference, circular and equal throughout. Neck and Nose, each not more than a diameter long. Flesh, crisp and juicy. Flower, remaining on the fruit.

Soil.—A fresh loam, as the top spit of a pasture, is perhaps as fine a soil as can be employed for the cucumber.

Culture : in Dung Beds.—The time of sowing the cucumber depends upon the time when the plants are required for final ridging out. Three or four weeks will always be required for raising the plants to a fitness for that purpose. The seed-bed should be made up three and a half feet high at the back, and from two feet six inches to three feet high in the front, and on a dry bottom. The frame should be put on as soon as the bed is made, and the seed should not be sown until the heat of the bed is sweet and healthy, to which state it may be hastened by its surface being stirred once or twice daily and watered, plenty of air also being given. The best material to put on the seed-bed to plunge the pots or pans of seeds in is old tan, or well-rotted dung, or leaf-mould, which may be run through a very coarse sieve. With this material the bed may be covered all over, or any part of it, to any thickness, to suit the purpose intended; and its being

sifted makes it the more pleasant to handle, either for raising the plants nearer to the glass or lowering them. The seeds may be sown either in small pots or in pans, and the seedlings to be moved from one to three plants in a pot. If sown in the pots so as not to need shifting, the pots may be crocked, and a little better than half filled with earth, and three seeds in each covered half an inch deep. When the plants are up, they may be thinned either to one or two in each pot; and as the plants advance in height, so the pots may be filled up with rich, light earth, which should be kept in the frame for the purpose; also, a small pot of water should be kept in the frame, for moistening the earth or sprinkling the plants when required. The plants should be kept within three or four inches of the glass. Three or four sowings may be made during January. It is important to have the seed-bed in the winter months defended from piercing winds, by thatched hurdles both on the west, north, and east sides. As soon as the young plants have formed two rough leaves they should be stopped.

Fruiting-bed.—The materials for making up either this or the seed-beds should be thoroughly well worked by being turned over four or five times, shaken together well and mixed, and, if dry and husky, thoroughly well watered at the first two turnings, as the work goes on. The lumps should be broken up, and the short mixed with the long, until the whole mass has one uniform appearance, and is nearly half rotten. The size of the beds depends on the season. In February, six feet high at the back and three feet in front; and if in January, a foot higher will be required; and if March, a foot less will be sufficient. A dry bottom in all cases, and the materials well put together, shaken up, and beat down well as the work goes on; and the bed should be always six or eight inches wider than the frame all round. As soon as completed, put on the frame and lights. When settled, and all become sweet and healthy, the hillocks of earth may be put on for the young plants to be placed in; but, before the hillocks are made, particularly in the early season, when the very strong beds cause some danger of burning, some preventive measures must be adopted. Almost every dung-bed cu-

cucumber grower has his favourite way to prevent this occurrence. Some pave the bottom of the hillock with six or eight bricks; others with a thick twist of straw or some hay-bands, over which three or four inches thick of cowdung are placed of about the substance of mortar; others, again, remove a little of the centres, and place therein a good thick turf with the grass side turned downward, and on this a good thick paste of cowdung. But the best plan for the bottom of the hillocks is that given by Mr. Errington in *The Cottage Gardener*, at page 164 of vol. iii., by carrying up a cold bottom of brick-bats, &c., from the bottom of the bed, as the work goes on. Whichever method is adopted, the hillock must be about a bushel of rich earth prepared for the purpose, and in a cone shape, so as to bring the plants within six or seven inches of the glass. Do not cover the whole surface of the beds with earth at this time; for, should the beds be very strong, it may be necessary to undermine the hillocks. As the roots put out round the hillock, they should be covered with a handful or two of earth; and if all goes on well, the hillocks will very soon require to be extended, and the plants stopped and pegged down.

Hand-glass Crops.—Sow for these towards the end of March or beginning of April. The plants to be ridged out towards the middle or end of April, under hand-glasses. If the open, warm quarters are to be occupied by this fruit, trenches one or one and a half feet deep should be dug out, by two and a half feet wide, and ten feet wide from row to row; these to be filled with good, fermenting dung, that has been well worked as for other hotbeds. The trenches should be filled six or eight inches above the common level of the soil before the earth is put on. Put on the earth in the form of a ridge until the heat is up, which will be in the course of three or four days, when it may be levelled down, the glasses put on, and the plants turned out under them, and watered with tepid water. The pots out of which the plants were turned may remain to tilt the lights with when a little air is required; and when the plants begin to fill the lights, two similar pots or half bricks will be required to stand the lights upon over the plants,

after which they may be trained out by degrees, and as they begin to extend over the beds, the sides or alleys must be forked and well broken up, making a neat level surface for the plants to be trained out upon. The plants will require stopping, training, and plenty of water in dry, hot weather.

Temperature.—Air is to be admitted every day as freely as contingent circumstances will admit, and also at night, if the degree of heat and steam threatens to be too powerful. It must never be neglected to cover the glasses at night, apportioning the covering to the temperature of the air and bed. The heat should not exceed 80° in the hottest day, or sink below 65° during the coldest night. If the heat declines, coatings of hot dung are to be applied in succession to the back, front, and sides, if that source of heat be employed. As the mould appears dry, moderate waterings must be given, care being taken not to wet the leaves. The best time for applying it is between ten and two of a mild day, the glasses being closed for an hour or two after performing it. The temperature of the water must be between 65° and 80°. The interior of the glass should be frequently wiped, to prevent the condensed steam dropping upon the plants, which is very injurious to them.

Hot-Water Beds.—Mr. Latter, one of the most successful of cucumber growers, employs hot-water to heat his beds; and he gives us these leading points in his culture:—He sows in the first week of September, and the vines from this sowing will be in bearing and very strong before February. The seedlings are first shifted into sixty sized pots, secondly into twenty-fours, and lastly into the largest size. If to be trained on a trellis, the runner must not be stopped until it has, trained to a stick, grown through the trellis. The temperature in the pit or frame is kept as nearly 65° as possible during the night, and from 75° to 85° during the day; air being admitted *night and day*, little or much, according to the state of the weather. The bottom-heat (Mr. Latter is the champion of the hot-water system) is kept as near as can be to 70°, although he finds that 85° does not hurt the plants. He waters them with soft water until February, and then employs liquid-

manure, taking care that the temperature of the liquid is always from 75° to 80°. The earth over the hot-water tank or pipes ought not to be less than fifteen inches deep. During severe frosts it is an excellent plan to keep a small floating light burning within the frame every night.

Open Ground Crops.—The sowing for these crops must be performed at the close of May, or early in June. A rich, south-west border, beneath a reed or other fence, is peculiarly favourable, as they then enjoy a genial warmth without suffering from the meridian sun. The border being dug regularly over, and saucer-like hollows, about fifteen inches in diameter and one or two deep, formed five feet apart, the seed may be sown six or eight in each.

Seed may also be sown beneath a hedge of similar aspect, and the plants either trained to it or to bushy branches placed perpendicularly. If the weather be dry, it is requisite to water the patches moderately two or three days after sowing. In four or five days, if the season be genial, the plants will make their appearance, and until they have attained their rough leaves, should be guarded from the small birds, who will often destroy the whole crop by devouring the seminal leaves.

If the season be cold and unfavourable, plants may be raised in pots, under a frame or hand-glasses, as directed for those crops; to be thence transplanted, when of about a month's growth, or when the third rough leaf appears, into the open ground, shelter being afforded them during the night. Water must be given every two or three days, in proportion to the dryness of the season, applying it during the afternoon or early in the morning.

Only three or four plants may be allowed to grow together in a patch, and these pressed far apart. The training must be as carefully attended to as for the other crops; but stopping is seldom necessary, as the plants are rarely super-luxuriant. They will come into production in August and September.

To obtain Seed.—For the production of seed, some fruit must be left of the earliest forced production, as this is found to vegetate and produce fruit in much less time than that raised under hand-glasses, from whence the seed for

the open-ground crops is usually obtained. The fruit that is left to produce seed should grow near the root, and upon the main stem, not more than one being left on a plant. They must remain as long as the seed can obtain any nourishment from the plant, which it does whilst the footstalk remains green. When this withers, and the rind of the cucumber has attained its full yellow hue, they may be gathered, and reared in the sun until they begin to decay. The seed then being scraped out into a vessel, allowed to remain for eight or ten days, and frequently stirred until the pulp attached to it is decayed, may be cleansed by frequent agitation in water: the refuse rises to the top, and passes away with the liquid. Being thoroughly dried by exposure to the air for three or four days, it is then fit for storing. Seed three or four years old is found to be best for use, producing less luxuriant but more productive plants.

Propagation by Cuttings.—Cuttings five or six inches in length, taken from the tops of bearing branches of vigorous plants, about the end of September, or early in October, planted in pots of rich mould, and plunged in a hotbed or bark-bed in a stove, will take root, if regularly watered, in less than a fortnight, and may then be planted in a hotbed for fruiting, which they will do as soon as the roots can support them, perfecting the fruit before Christmas. They may thus be had in succession, and being propagated from year to year, are rendered, as it were, perennial. The plants are less succulent, and consequently less liable to damp off, or suffer from the low temperature to which they are liable to be exposed in severe seasons. Mr. Mearns puts four inches and a half of mould in pots nine inches deep, in which the cuttings are planted and watered, the tops of the pots being covered with flat pieces of glass, which answers the purpose of a hand-light, whilst the sides of the pot afford a sufficient shade until the roots are formed. When the plants have afforded their first crop, any small fruit must not be waited for, but the plants be cut back to the lowest shoot, the mould gently stirred, and a little fresh spread over the surface; the same attention must be paid them as before, when they will shoot afresh, and produce a good crop.

Diseases.—The cucumber is liable to be attacked by the MILDEW, CANKER, GUMMING (extravasated sap), and DEFORMITY. (See those articles.) The fruit is also liable to *bitterness*, an ill quality usually removed by increasing the temperature, and exposure to the light. It arises from an imperfect elaboration of the juices: those in the neck of the cucumber being least digested, are always more bitter than in any other part of the fruit.

Insects.—See APHIS, ACARUS, and THrips. For Melon-culture see MELON.

CUCUMBER-TREE. *Magnolia acuminata*, and *Ave rho'a biliti*.

CUCURBITA. Gourd. (From *curbita*, a gourd. Nat. ord., *Cucurbitaceae* [Cucurbitaceae]. Linn., 21-Monæcia 10-Monadelphæa.)

Half-hardy trailing annuals, requiring the same culture as the Cucumber.

C. aurantiaca (orange-fruited). 3. Yellow. July. 1802.

— *—* *aurantina* (false orange). 3. Yellow. July. 1802.

— *—* *colocynthides* (colocynth-like). 3. Yellow. July. 1802.

— *—* *maxima* (largest). 4. Yellow. July.

— *—* *melopepo* (melon-pumpkin. *Squash*). 3. Yellow. June. 1597.

— *—* *muschata* (musky). 4. Yellow. July.

— *—* *ovifera* (egg-shape). 3. Yellow. August. Astracan.

— *—* *grisea* (grey-fruited). 3. Yellow. July.

— *—* *pyriformis* (pear-form-fruited). 3. Yellow. July.

— *—* *subglobosa* (sub-globe-fruited). 3. Yellow. July.

— *—* *pepo* (pumpkin). 16. Yellow. July. Levant. 1570.

— *—* *oblonga* (oblong-fruited). 6. Yellow. July. 1570.

— *—* *subrotunda* (nearly-round-fruited). 6. Yellow. July. Levant. 1750.

— *—* *potira* (potiron, large-fruited). 10. Yellow. July.

— *—* *gourgera* (gourd-bearing). 10. Yellow. July.

— *—* *viridis* (green potiron). 10. Yellow. July.

— *—* *verrucosa* (warty). 12. Yellow. June. 1658.

CULCA'RIA. (Derivation same as *Colocasia*. Nat. ord., *Arads* [Araceae]. Linn., 21-Monæcia 7-Heptandria. Allied to *Caladium*.)

Stove climber. For culture, see COLOCA'RIA.

C. scandens (climbing). White. Guinea. 1822.

CULLUMINE, or COLUMBINE. *Aquilegia*.

CUMIN. *Lagœcia cuminoi'des*.

CUMINUM CYMINUM. Common Cumin, an annual, native of Egypt, bearing white flowers, and belonging to the Nat. ord., *Umbellifers*. It is cultivated for its aromatic seeds. Sow in a warm situation

in March, in a rich, light soil; the plants flower in June, and ripen their seeds in the autumn.

CUMM'INGIA. (Named after the late Lady Gordon Cumming, of Altyre, in Morayshire. Nat. ord., *Lilyworts* [Liliaceae]. Linn., 6-Hexandria 1-Monogynia. Allied to *Conanthera*.)

Beautiful little half-hardy bulbs from Chili which succeed best in a light, rich border in front of a greenhouse, with *Ixias*, *Brodiseas*, *Zephyranthes*, *Anomatheas*, and the like. Offsets in loam and peat.

C. campanulata (bell-flowered). 3. Blue. August 1823.

— *tene'lla* (delicate). 3. Blue. November. 1824.

— *trimaculata* (three-spotted). 3. Blue. December. 1829.

CU'NILA. (After a town of that name. Nat. ord., *Labiates* [Lamiaceae]. Linn., 2-Diandria 1-Monogynia. Allied to *Balm* and *Mint*.)

North American hardy herbaceous perennials, root divisions; in loam and peat.

C. coccinea (scarlet). 1½. Scarlet. September 1823.

— *Mariand* (Maryland). 1. Red. September 1759.

CUNNINGHAMIA. Broad-leaved China Fir. (In honour of two brothers, J. and A. Cunningham, British botanists in Australia. Nat. ord., *Conifers* [Pinaceae]. Linn., 21-Monæcia 10-Monadelphæa. Allied to the Spruce Fir.)

Greenhouse evergreen tree, but in some situations hardy; light soil, well drained; cuttings can be rooted, but seldom make handsome plants; seedlings are best.

C. Sinen'sis (Chinese). 40. China. 1804.

CUNO'NIA. (Named after J. C. Cuno, of Amsterdam. Nat. ord., *Cunoniads* [Cunoniaceae]. Linn., 10-Decandria 2-Digynia.)

Greenhouse evergreen tree; loam and peat; cuttings in sand, under glass, in heat.

C. Cape'nsis (Cape). 20. White. August. Cape of Good Hope. 1816.

CUPA'NIA. (Named after F. F. Cupani, an Italian monk, who wrote on botany. Nat. ord., *Soapworts* [Sapindaceae]. Linn., 8-Octandria 1-Monogynia. Allied to *Sapindus*.)

Stove evergreen trees, all with white flowers; loam and peat; cuttings of half-ripe shoots in sand, under glass, in heat. Summer temp., 60° to 85°; winter, 55° to 60°.

C. canescens (hoary). 16. E. Ind. 1818.

— *dentalta* (toothed). 12. Mexico. 1824.

— *exco'ssa* (lofty). 20. Mexico. 1824.

— *glabra* (smooth). 14. May. Jamaica. 1822.

— *sa'pida* (savoury. *Akee-tree*). 20. Africa. 1793.

— *saponarioides* (saponaria-like). 6. April. W. Ind. 1810.

— *setigera* (bristly). 20. November. Moreton Bay. 1830.

— *tomentosa* (downy). 15. W. Ind. 1818.

CUPHEA. (From *kuphos*, curved; referring to the form of the seed-pods. Nat. ord., *Loosestrifes* [Lythraceæ]. Linn., 11-Dodecandria 1-Monogynia. Allied to *Lythrum*.)

Dry, rich soil; seeds; and cuttings in the spring months.

ANNUALS, &c.

- C. Circæoides* (Circæa-like). 3. Purple. September. S. Amer. 1821. Greenhouse.
- *parviflora* (small-flowered). 3. Pink. November. Demerara. 1824. Stove.
- *procumbens* (lying-down). 1. Pale purple. August. Mexico. 1816. Stove.
- *sileneoides* (silene-like). 1½. Bluish. September. 1836. Hardy.
- *spicata* (spiked). Rose. Peru. 1819. Hardy.
- *viscosissima* (clammiest). 1. Purple. July. America. 1776. Greenhouse.
- *virgata* (twiggly). 1½. Purple. August. Mexico. 1824. Greenhouse.

STOVE & GREENHOUSE EVERGREENS, &c.

- C. cordata* (heart-leaved). 1½. Scarlet. June. Peru. 1842.
- *decaandra* (ten-stamened). 1½. Purple. July. Jamaica. 1789.
- *gracilis* (slender). 1. Purple. July. Orinoco. 1824.
- *lanceolata* (spear-head-leaved). 1½. Purple. Mexico. 1796. Stove biennial.
- *Llavea* (Llave's). 1½. Purple. June. Mexico. 1830. Greenhouse.
- *Melvillea* (Melville's). 3. Scarlet. August. Guiana. 1823. Herbaceous perennial.
- *micropetalata* (small-petaled). 1. Purple. July. Mexico. 1824.
- *minia* (vermilion-coloured flower). Purple, crimson. June.
- *purpurea* (purple-flowered). 1½. Purplish. June. 1847.
- *multiflora* (many-flowered). 1½. Purple. September. Trinidad. 1820.
- *platycentra* (broad-centred). 1½. Scarlet, white. June. Mexico. 1845. Greenhouse.
- *alba* (white-flowered). 1½. White. June. 1848.
- *racemosa* (raceme-flowered). 1. Purple. June. W. Ind. 1820.
- *serpyllifolia* (thyme-leaved). 1½. Red. August. Trinidad. 1822.
- *strigillosa* (coarse-haired). 1½. Yellow, red. July. Andes. Greenhouse.

CUPHA. See STYLOCOBYNE.

CUPRESSUS. Cypress. (From *kuo*, to produce, and *parisos*, equal; in reference to the symmetrical growth of the Italian cypress, *C. sempervirens*. Nat. ord., *Conifers* [Pinaceæ]. Linn., 21-Monœcia 10-Monadelphina.)

Evergreen trees; hardy, unless otherwise stated; rich, loamy soil; and readily increased from seeds; can be raised from cuttings.

- C. australis* (south. Slender-branched). 10. April. N. Holland. Greenhouse.
- *bacciformis* (berry-shaped). 20. May. 1818.
- *Coulteri* (Coulter's). May. Mexico. 1838.
- *flaccida* (drooping).
- *funeraria* (funereal). 50. April. China. 1849.

C. Goveniana (Mr. Gowen's). 10. April. California. 1848.

— *Lusitanica* (Portuguese. Cedar of Goa). 50. April. Goa. 1683. Greenhouse.

— *macrocarpa* (large-fruited). 60. California. 1847.

— *pendula* (hanging-down). 20. May. Japan. 1803. Greenhouse.

— *sempervirens* (common evergreen). 20. May. Candia. 1548.

— *horizontalis* (horizontal). 30. May. Mediterranean. 1834.

— *stricta* (erect). 20. May. Mediterranean.

— *variegata* (variegated). 20. May. England. 1848.

— *thurifera* (frankincense-bearing). 100. Mexico. 1836.

— *thyoides* (thya-like. White Cedar). 20. May. N. Amer. 1736.

— *fulvis* - *variegata* (variegated-leaved). April. Ireland. 1831.

— *torulosa* (twisted. Bhojan). 30. Nepal. 1824.

— *Utheda* (Uthde's). 60. Mexico. Greenhouse.

CURATELLA. (From *kureno*, to shave; in reference to the leaves being covered with asperities so hard as to render them fit for polishing. Nat. ord., *Dilleniads* [Dilleniaceæ]. Linn., 13-Polyandria 2-Digynia. Allied to *Delima*.)

Stove evergreen shrubs; sandy loam and peat; cuttings in sand, under glass, in heat.

C. alata (winged-leaf-stalked). 8. White. Guiana.

— *Americana* (American). 8. White. S. Amer.

CURCULIGO. (From *curculio*, a weevil; the seeds have a point like the rostrum, or beak, of the weevil. Nat. ord., *Hypoxids* [Hypoxidaceæ]. Linn., 6-Hexandria 1-Monogynia.)

Hypoxids are distinguished from *Amaryllids* by the absence of bulbs, and by their harsh and hairy leaves. Stove herbaceous perennials, except one; sandy loam and peat; offsets.

C. brevifolia (short-leaved). ½. Yellow. June. E. Ind. 1804.

— *latifolia* (broad-leaved). 1½. Yellow. Poolo Pinang. 1804.

— *orchioides* (orchis-like). ½. Yellow. June. E. Ind. 1800.

— *plidata* (plaited-leaved). 1½. Yellow. June. Cape of Good Hope. 1788. Greenhouse.

— *glabra* (smooth). 1½. Yellow. June. Cape of Good Hope. 1788. Greenhouse.

— *recurvata* (rolled-back-leaved). 1. Yellow. Bengal. 1805.

— *Sumatрана* (Sumatran). 3. Yellow. July. Sumatra. 1818.

CURCULIO. This destructive genus of Beetles are popularly known as *Weevils*. The following are some of the chief species:—

C. alliarie. Stem-boring Weevil. Steel-green colour. Bores the shoots and grafts of young fruit-trees. Appears in June and July.

C. bacchus. Purple or Apple Weevil. Pierces the fruit of the apple, depositing within it its eggs. June and July.

C. betuleti. Vine Weevil. Colour steel-blue. Attacks the leaf, rolling it up as a nest for its eggs. The pear is liable to its attacks also. Appears in June and July.

C. cupreus. Copper-coloured Weevil. Attacks the leaves and young shoots of the plum and apricot, as well as their fruit. June and July.

C. lineatus. Striped Pea Weevil. Every gardener must have observed the edges of the young leaves of his peas, and sometimes of his beans, eaten away in scollops,



or semicircular pieces. This is often done by the *Sitona tibialis*, but still more frequently by another of the short-snouted beetles, *Curculio lineatus*. In Scotland it is commonly called "the Cuddy," or Donkey, from its grey colour. In our drawing it is magnified; but the line by its side shows the natural length. The whole body is grey, and marked with black lines; the antennæ reddish; the eyes black. They survive the winter sheltered beneath moss, &c., and in bad weather at all seasons retire under stones, only to reappear with the sunshine.

C. macularius. Spotted Weevil. Grey colour. April. Also destroys the pea. Soot or lime sprinkled over peas early in the morning before the dew is off from them, and so thickly as to cover the soil about them, would probably save them. To mitigate the attack of the weevils upon trees, the only mode is to spread a sheet beneath them, to shake each branch, and to destroy those beetles which fall. They usually feed at night.

C. nucum. Nut Weevil, of which the maggot is so frequent in our filberts. Mr. Curtis thus describes it:—"The insect is brown, with darker bands; is about a quarter of an inch long, and has a long horny beak, about the middle of which are placed antennæ. When the nut is in a young state the female weevil

deposits a single egg. The maggot is hatched in about a fortnight, and continues feeding in the interior of the nut till it is full grown, when the nut falls. The maggot has no legs, nor, indeed, has it any use for them, being hatched in the midst of its food; and when the nut remains on the tree, it forces itself out of the hole it eats in the nut, and falls almost immediately to the ground. The only remedy we are aware of is, in the course of the summer, to frequently shake the trees, which will cause all the eaten nuts to fall to the ground, when they must be collected and burned."

C. oblongus. Oblong Weevil. Reddish-brown colour. Feeds on the young leaves of the peach, apricot, plum, pear, and apple. Appears in May.

C. picipes is a dull black, and is very injurious in the viney.

C. pomorum. Apple Weevil. Colour, dark brown. Attacks the blossom of the apple, and often destroys the whole crop. More rarely it attacks the pear blossom. Appears in March and April.

C. pyri. Pear Weevil. Dark brown, very like the Apple Weevil. April.

C. sulcatus. During the winter months, succulent plants, such as Sedums, &c., become sickly, and die, apparently without a cause. They are thus destroyed by a small, footless grub feeding upon them just below the surface of the earth. This grub is about half an inch long, colour dirty white, fleshy, slightly curved, bristly, and without legs, but furnished at the sides with tubercles, which aid it in moving. At the latter part of May, these grubs enter the chrysalis state, becoming



white, and having the appearance of the body of a beetle stripped of its wings, and in a mummy state. From this state the perfect insect comes forth, at the end

of June, in the form of a small beetle, as pictured in the accompanying drawing, but not longer than the curved line by its side. It is black, slightly glossy, numerous granulated, so as to resemble shagreen, and a few pale-grey hairs scattered over it. The best mode of saving succulents from this pest is to have it very assiduously sought for among them during the month of June. If the beetles are allowed to deposit their eggs the mischief is done.

C. tenebricosus infests the apricot. Mr. Curtis says, that "every crevice in old garden-walls often swarms with these weevils; and nothing would prove a greater check to their increase than stopping all crevices or holes in walls with mortar, plaster of Paris, or Roman cement, and the interior of hothouses should be annually washed with lime; the old bark of the vines under which they lurk should be stripped off early in the spring, and the roots examined in October, when they exhibit any unhealthy symptoms from the attacks of the maggots of *C. sulcatus*. When the larvæ are ascertained to reside at the base of the wall, salt might be freely sprinkled, which will kill them as readily as will the maggots in nuts. Strong infusions of tobacco-water, aloes, and quassia are also recommended."

CURCUMA. Turmeric. (From *kurkum*, its Arabic name. Nat. ord., *Gingerworts* [Zingiberaceæ]. Linn., 1-Monandria 1-Monogynia.)

Most of the species possess the same aromatic stimulating properties in the roots or rhizomes, and seeds, as the common ginger, and are objects of some beauty from their coloured bractes. Stove herbaceous perennials; rich, sandy loam; root division.

- C. ærugino'sa* (bronzed). 5. Red, yellow. May. E. Ind. 1807.
- *Amada'sa* (Amada-ginger). 2. Red, yellow. April. Bengal. 1819.
- *amarissima* (most bitter). Red, yellow. April. E. Ind. 1822.
- *angustifolia* (narrow-leaved). 3. Yellow. July. E. Ind. 1822.
- *aromatica* (aromatic). 2. Yellow. June. E. Ind. 1804.
- *cæ'sia* (grey). 1. Yellow. May. Bengal. 1819.
- *como'sa* (tufted-flowered). 2. Red, yellow. May. E. Ind. 1819.
- *ela'ta* (tall). 3. Crimson. May. E. Ind. 1819.
- *ferruginea* (rusty). 1. Yellow. May. E. Ind. 1819.
- *latifolia* (broad-leaved). 12. Yellow. May. E. Ind. 1820.
- *leucorhiza* (white-rooted). 1. Red, yellow. May. E. Ind. 1819.
- *longa* (long-rooted). 2. August. E. Ind. 1759.

- C. monta'na* (mountain). 2. Red, white. May. E. Ind. 1824.
- *parviflora* (small-flowered). 2. White, violet. January. Promé. 1828.
- *petiola'ta* (long-flower-stalked). 2. Blue. August. Pegu. 1822.
- *Roscoe'na* (Mr. Roscoe's). 1. Scarlet. September. E. Ind. 1837.
- *rectina'ta* (leaning). 2. Pink. April. E. Ind. 1829.
- *rube'scens* (blushing). 3. Red. July. E. Ind. 1805.
- *rubricaulis* (red-stemmed). 1. Yellow. May. E. Ind. 1822.
- *viridiflora* (green-flowered). 2. Yellow, green. July. Sumatra. 1822.
- *xanthorhiza* (yellow-rooted). 4. Red. May. Amboyna. 1819.
- *zedoaria* (zedoary). 3. Red. July. E. Ind. 1797.
- *Zerumbet* (Zerumbet). 3. Yellow. July. E. Ind. 1807.

CURRENTS. THE RED, *Ri'bes ru'brum*; THE WHITE, *R. ru'brum*, var. *a'lbum*; and THE BLACK, or *R. ni'grum*, are all deciduous shrubs. The culture of the RED and WHITE differs in some degree from that of the BLACK.

Red Varieties.—The following are the best:—

Red Dutch. Fine fruit; bunch very long.

White Dutch. Very large and juicy berries.

Knight's Sweet Red. As its name imports.

Knight's Large Red. Said to be larger than Red Dutch.

Houghton Castle Red, or Goliath. Said to be both late and fine.

Red Dutch. A good kind; bushes short, but berries large and sweet.

White Varieties.—Common White; Pearl White; and White Dutch, the last being the largest and best.

Propagation: by Cuttings.—This is the ordinary way. Young shoots of the most vigorous and straight wood are to be preferred. Shoots of this description should be preserved at the early autumn pruning, and all the immature portion at the point being pruned away, the best of the remainder must form the cutting, and it should be at least one foot in length—if fourteen inches, all the better. Blind all the eyes or buds below the surface of the ground, to prevent suckers springing up; for these cuttings will emit roots from the internodes or points between the joints. Cuttings placed in a somewhat shaded situation, and fastened tolerably firm in the soil, will make two or three shoots the first summer. They may be put in rows eighteen inches apart; the

cuttings about eight inches apart in the rows. In the succeeding autumn prune the shoots they have made back to about four or five eyes or buds on each; and by the succeeding autumn they will be fine bushes, possessing some six or eight shoots each, from which a selection must be made, for on this depends the future form of the tree. It is seldom that more than five shoots can be retained; indeed, sometimes the shoots are produced so irregularly, that not more than three can be saved—standing, of course, nearly in a triangular form. However, only those should be reserved which are really well placed, not only with regard to form, but their distance apart. In forming the bush, let there be no central shoot left, but let the whole, if possible, form either a triangle, if three; a square, if four; or a bowl-like character—in fact, about the form of a good tulip, if more than four. The trees are now ready for their final destination, if necessary, or they will stand another year before final removal.

By Layers.—This is seldom resorted to. If, however, any one should possess a choice seedling of which he is desirous to make much profit, he might elevate the soil to the branches, as in the act of layering carnations, and lay the shoots for propagation flat on the surface, cutting a notch below each bud, pegging the shoot down, and soiling it over about an inch: every bud becomes a shoot with a root.

By Seed.—This is resorted to for the sake of raising new varieties. Sow the seeds as soon as ripe, and in the spring place them in a hotbed; the plants will grow above a foot high the same season. Many of them fruit at two years old, and nearly all at three.

Suckers.—They grow readily from suckers. There is little doubt but that plants thus reared are more liable to produce suckers than those from cuttings.

Soil.—The Red and White currants love a free, upland soil; a clayey soil is too cold, and a very sandy one is too hungry. Water lodgments they are quite averse to.

Culture in the Growing Period.—In the first place, if the soil is liable to suffer from drought, let a top-dressing of half-decayed manure, or littery material, be spread three inches thick over their roots, at the end of May, after rain. The next point is "stop," or remove, what is termed

the watery wood. All shoots growing into the interior of the bush, to the exclusion of light and air, may be cut back when about nine inches in length, far enough to render the centre of the bush completely open. This will be necessary about the middle of June. In about another fortnight, the watery or wild-looking breast-spray all round the exterior may be pruned back to within four inches of their base. This leaves a regular tuft of foliage all round, absolutely necessary for a partial shade to the swelling fruit. Some intervening spray between each two branches must be served likewise; and if growing freely, the leading points of the shoots may be stopped also.

Culture in the Rest Season.—Early pruning is the first thing to be thought of, as soon as possible after the leaves are fallen. Every healthy branch in a bearing state will, during the summer, produce abundance of side-shoots from amongst the spurs: this is the wood we have first named as being all the better for stopping in June. All this must be cut back, at the winter's pruning, to within one inch or so of the main stem. An exception must, however, be taken in favour of gaps or blanks, and a shoot here and there must be reserved to fill such, taking care that they are well placed, and that they are low enough down; the lower the better. Pruning being thus far carried, it is best to shorten every terminal point. This induces a liberal production of side-shoots in the ensuing summer; and the base of each becomes a centre, around which a host of fruit-spurs will be engendered. Any decayed or decaying wood must be cut away; but, if there is much of this, it is best to destroy the bush and plant anew; for it seldom makes a good bush again. Those who have not top-dressed in the summer may now do so, and the winter's work will be complete.

Fruit: uses; how to keep.—The fruit commences ripening, under ordinary circumstances, in the end of June, and continues hanging for a length of time, if unmolested by the birds or wasps. The White will hang nearly two months, and the Red we have gathered, uncovered and unprotected, in the first week of November. The ordinary way of retarding the currant is by enclosing the trees in mats when the fruit is rather more than

three parts ripe. These mats should be taken off at least once a week on dry days, to dispel the damp. All decaying leaves and berries should, at such times, also be carefully removed. Some train against north walls, where the fruit keeps very late, but is exceedingly acid. A White Currant or two, planted against a south wall or fence, will come in very early for the dessert.

Diseases.—We are not aware of any except a premature decay of the old shoots, after the manner of apricots, the causes of which are not well understood.

Insects.—The caterpillar sometimes attacks them; but their greatest enemy is an aphid, which distorts the leaves in a puckered form, producing red blisters. Tobacco-water is the best remedy.

CURRENT (THE BLACK).

Varieties.—We are not aware of any more than two in this section really deserving of notice, which are—

The Common Black. A good bearer, but fruit small.

The Black Naples. A short bunch, but noble berries.

The latter kind is now almost universally cultivated. It both requires and deserves a generous treatment. The "Black Grape" is recommended by some; but we question if it is not synonymous with the Black Naples.

Propagation: by Cuttings, Seeds, and Layers, similarly to the Red and White.

Soil.—Moisture of a permanent character is the great desideratum with this shrub; dry soils can never do justice to it. A soil somewhat adhesive in character suits it best, but not a cold clay; although, with due culture, we have known them succeed well in a soil of which clay or marl formed one of the principal compounds. A soft and darkish-looking soil, such as the scouring of old ditches, resting on a clayey sub-soil, and especially if large trees overhang, becomes, by the action of water, an excellent material for a Black Currant plantation. The clayey principle is generally incorporated with it; and being rich in vegetable matter, it constitutes a fat and pulpy mass. It must, however, be thrown out some time to mellow, previously to its being mixed with the soil. In Cheshire, it is very usual to see them planted on the sides of ditches, which convey the impure drainage from the house or farmstead; and there they luxuriate, with a very in-

ferior course of culture in other respects. It may, nevertheless, be observed, that almost any ordinary garden-soil, if of tolerably sound texture, will grow them pretty well, with the mulchings we shall have to recommend.

Culture in the Growing Period.—There are three essential points of spring and summer culture, viz.—mulching, watering, and the extermination of the aphides. *Mulching* we prefer done in November, as soon as the bushes are pruned; we will, therefore, advert to this under "rest culture." If, however, it has been omitted at that period, apply it in the early part of May, immediately after a liberal rain. If dry weather ensue between the period of the berries attaining the size of small peas and their final change towards ripening, the water-pot must be used freely. The want of a permanency of moisture is the predisposing cause towards a severe visitation from the aphides; but these are easily destroyed if the bushes are syringed two evenings in succession with soap-suds, in which tobacco, after the rate of six or eight ounces to the gallon, has been well soaked.

Culture in the Rest Period.—Prune and then top-dress. The pruning should be done as soon as the leaves have fallen, unless the trees are very gross, when it will, perhaps, be as well to allow them to waste a little of their surplus strength for fear of the bud being impelled too early into action. In pruning, very little of the shortening, as applied to the Red and White kinds, is necessary; in fact, we practise none at all, unless in the case of overgrown bushes, when we merely remove altogether, or shorten back, those which are becoming inconveniently high. The whole of the process of winter pruning, therefore, resolves itself into "thinning out," except in the case of young trees forming their head. In thinning bearing trees, suffer no two shoots to touch in any part of the tree. Endeavour to remove all cross or very oblique shoots, in order to promote easy pruning in subsequent seasons; and where a bare part of the bush occurs, let a strong shoot or two, in a proper situation, be shortened back about one-third their length, in order to cause young wood to abound in that part the following year. As a general rule, let the shoots average four inches apart all over the tree when pruned. When trees acquire

some age, let the pruner, as his first act, look carefully over the bush, and see what old shoots may be completely pruned away. All those which possess merely a twig or two of young wood at the extremity may be at once cut out, for they take more from the tree than they repay. As to forming young trees, the directions given for the other currants will apply very well; only there is no necessity to preserve the interior of the bush open, as in the Red and White kinds. A young tree, therefore, at three years old, may contain ten or twelve shoots, at equal distances. As soon as such a number can be obtained, shortening may cease.

Fruit: how to keep.—This fruit is soon over; for, once ripe enough for the table, it is gone in a few days; and it is so liable to drop, that this is one of the very few fruits that bid defiance to the art of keeping on the bush. Keeping on the tree, if attempted, must be on the retarding principle; and canvass or mats must be thrown over the bushes when the fruit is about one-third ripe.

CURRENT SPHINX. (*Trochilum tipuliforme*.) Every one acquainted with old gardens must have frequently noticed that one or more of the branches of the currant-trees tenanted them have suddenly withered and died without any apparent cause. In such cases, if the wood of the branch be split down the centre, the pith will be found all consumed, the tube where it had been blackened, and nothing remaining but the excrements of a caterpillar, which may also be caught at his work of destruction if the examination is made so soon as the branch first shows symptoms of withering. This caterpillar—fleshy, whitish, with four yellowish-brown spots near its head—is the larva of the Currant Sphinx. The parent moth is beautiful, and may be seen at the end of May and early in June during hot sunshine, either settled on the leaves of the currant, or flying around the flowers of the syringa and lilac. It is about three-quarters of an inch across the wings when these are quite opened; the prevailing colour is bluish-black, with various parts yellow; the antennæ black; the breast with a yellow line on each side; the abdomen, or lower part of the body, has three yellow rings round it in the females, and four in the males; the four wings are barred

and veined with black; it has a brush of fine scales at the end of its abdomen, which fan it can expand as it pleases. The Red, White, and Black Currant, and, we think, the Gooseberry, are all liable to its attacks. It lays its eggs at this time in openings of the bark of a young shoot; and the caterpillar, immediately it is hatched, penetrates to its pith, and eats its way down this until it reaches the pith of the main branch. The only securitive measures are to kill the moth whenever seen, and to split open the withered branches, and serve the caterpillars similarly.—*The Cottage Gardener*, ii., 115.

CURT'SIA. Hassagay-tree. (In honour of the late *William Curtis*, who originated the *Botanical Magazine*. Nat. ord., *Cornels* [Cornaceæ]. Linn., 3-*Triandria* 1-*Monogynia*.)

Cornels are entirely distinct from Caprifoliæ, with which they have long been associated. The Hottentots and Caffres make from this tree the shafts of their javelins. Greenhouse evergreen tree; sandy loam and peat; cuttings in sand, under glass, in heat.

C. faginea (beech-leaved). 30. Pale. Cape of Good Hope. 1775.

CUSCUTA. Dodder. (From *kechout*, its Arabic name. Nat. ord., *Dodders* [Cuscutaceæ]. Linn., 5-*Pentandria* 2-*Digynia*.)

One peculiarity in all the Dodders is that their seeds germinate in the earth; but, as soon as the roots of the seedlings are grown sufficiently to take hold of a neighbouring plant, or even of each other, they lose their attachment to the soil. Curious parasitical plants, with white flowers; sow in April. They will live upon almost any plant they can lay hold of, such as the common stinging-nettle, clover, hemp, &c.

STOVE.

C. America'na (American). August. S. Amer. 1816.

—*Hookeri* (Hooker's). September. E. Ind. 1823.

—*odorata* (sweet-scented). January. Lima. 1820.

—*verruco'sa* (warted). August. Nepaul. 1821.

GREENHOUSE.

C. australis (southern). August. N. Holland. 1818.

—*Chilensis* (Chilian). August. Chili. 1821.

—*Chinensis* (Chinese). August.

—*monogyna* (one-styled). July. Levant. 1818.

HARDY.

C. Californica (Californian). July. California. 1847.

—*epithymum* (flax-frequenter). July. Britain.

—*epithymum* (true dodder). July. Britain.

—*Europæa* (European). July. Britain.

—*lupuliformis* (hop-like). July. Silesia. 1824.

—*macrocarpa* (large-seeded). July. Siberia.

1827.

—*trifolii* (clover dodder). July. Britain.

CUSO'NIA. (Named after *P. Cusson*, a French botanist. Nat. ord., *Ivyworts* [Araliaceæ]. Linn., 5-Pentandria 2-Digynia. Allied to *Panax*.)

Greenhouse evergreen shrubs from the Cape of Good Hope, with green flowers; cuttings in sand, under a glass, with bottom-heat; loam and peat.

C. spicata (spike-flowered). 6. 1789.

— *thyrsiflora* (thyrsé-flowered). 6. 1795.

— *trippteris* (three-winged). 4. 1816.

CUSTARD APPLE. *Ano'na*.

CUTTING is a part of a plant capable of emitting roots, and of becoming an individual similar to its parent. The circumstances requisite to effect this are a suitable temperature and degree of moisture

A rooted cutting is not a new plant; it is only an extension of the parent, gifted with precisely the same habits, and delighting in exactly the same degree of heat, light, and moisture, and in the same food. There are numbers of plants which strike most readily from the young shoots; others from partially-ripened wood; some from a leaf with a bud at its base; a fourth set from offshoots from the base of the old plants; and a fifth from leaves or portions of leaves only; and in some rare cases, from the mere scolloped edges of the leaves; whilst several can only be propagated by cuttings of the roots, and a few by cuttings of the flower-stems. Particular cases will be described under the names of the species requiring some peculiar mode. In this place only general hints can be given.

Cuttings of hardy flowering-plants.—Most kinds of quick-growing, soft-wooded plants are best propagated by the young shoots or tops of the plants.

The following list embraces the principal of them:—*Soft-wooded plants.*—*Anagallis*, *Antirrhinums*, *Calceolarias*, *Carnations*, *Chrysanthemums*, *Dahlias*, *Dianthus*, *Double Wallflowers*, *Double Stocks*, *Gorterias*, *Gaillardias*, *Dwarf Lobelias*, *Fuchsias*, *Pelargonium*, *Petunias*, *Penstemons*, *Pinks*, *Salvias*, and *Verbenas*. These may all be placed in pots, in sand, in a frame heated either by leaves, manure, or tan, or in a pit or house built purposely, and heated by a tank and hot-water pipes. *Greenhouse hard wooded plants or shrubs* that strike best from young shoots or tops:—*Acacias*, *Aphelaxis*, *Azalea* (Chinese), *Boronia*, *Bossiaea*, *Chironia*, *Chorozema*, *Crowea*, *Correa*, *Cytissus*, *Daviesia*, *Dil-*

wynia, *Epacris*, *Eriostemon buxifolium* (for stocks to graft the other species on), *Erica*, *Gastrolobium*, *Gompholobium*, *Hardenbergia*, *Leschenaultia*, *Kennedya*, *Mirbeilia*, *Oxylobium*, *Platyllobium*, *Pleroma*, *Podolobium*, *Pimelia decussata* (for stocks to graft the rest of the genus upon), *Pultenæa*, *Styphelia*, *Tacsonia*, *Zichya*, and all New Holland shrubs of similar habit. These require to be placed in a gentle tan-bed, planted in pots, in silver sand, closely covered with bell-glasses, which should be wiped dry occasionally, and shaded from clear, bright sunshine. Great numbers of stove plants of woody habit require the same mode of treating their cuttings, for which see the body of the Dictionary.

Cuttings of partially-ripened Wood.—*Camellia*, *Cape Pelargoniums*, *Coniferae*, *Erythrina*, *Echites*, *Gardenia*, *Gordonia*, *Hakea*, *Magnolia*, *Metrosideros*, *Nerium*, *Portlandia*, *Rosa*, especially the *China* and *Tea-scented*, and most kinds of hardy evergreen shrubs.

Cuttings of Leaves with a Bud at the Base.—When cuttings of any kind of large-leaved plants are scarce, they may be successfully increased by single leaves with a bud at the base. We need not particularize any species, as most of the last section, and several of the others that have moderate-sized leaves, may be propagated in this mode of making cuttings.

Cuttings of Leaves only, without Buds.—The following will increase readily by this mode: *Achimenes*, *Gesnera*, *Gloxinia*, and all of similar habit, as well as some *Begonias*.

Cuttings of Offshoots from the base of the old plants.—*Cinerarias*, tall *Lobelias*, *Statice*s, and most kinds of herbaceous plants, increase readily by this mode.

Cuttings of the Roots.—There are a few plants that will not readily increase by any of the above modes, particularly some herbaceous plants: *Cenothera macrocarpa* is one, and *Cenothera cæspitosa* is another. Amongst hardy shrubs the *Pyrus Japonica* and its varieties will propagate by this mode; also the *Abele* poplar. In the stove, the *Ardisias*, *Cleodendrams*, *Dracenas*, *Ipomæas* (the tuberous-rooted species), and the *Petræa* *Stapelia*.

Cuttings of the Flower-stem.—Double white and yellow *Rockets*, the tall *Lobelias*, *Double Lychnis*, and a few others,

may be increased by cutting the flower-stem into lengths, and placing the cuttings under a hand-glass in a shady border.

In all *hollow-stemmed plants* the presence of a node, or joint, to cut through at is essential. This is the reason why cutting through at a joint is also of importance in other cases, and also the reason why taking those little shrubby side-shoots as cuttings is often so successful, what is technically termed the heel—the point of junction between the elder branch and the young shoot—being well-supplied with incipient buds, which readily produce roots. Whatever may be the mode and the time in which a cutting is made, and whether it is necessary, in the peculiar circumstances, to cut clean through at a joint, it is of importance that the cut be made with a clean, sharp knife.

Time when Cuttings should be taken.—

When any particular period is mentioned for this operation in this work, it is merely the period when, under general circumstances, the practice would be most suitable. Other things being equal, spring and summer are the best times for propagating greenhouse and stove shrubs, as thus the plants are established before winter.

Leaves of a Cutting.—Unless in particular circumstances, as many leaves should be removed as would enable the cutting to be firmly fixed in the cutting-pot, and if the leaves be large, a portion more may be removed, or lessened in their dimensions, in order to reduce the evaporating surface, success consisting in keeping the cutting healthy, and yet preventing it from parting with its stored-up juices; and hence the reason why we cover them with bell-glasses, and shade them from bright sunshine. The more leaves left, provided they can be kept healthy and vigorous, the sooner will roots be formed by the elaboration of fresh material, and the more quickly and without flagging will this elaboration take place, the more light the leaves receive. Shading, or *diffused light*, is essential at first; but the sooner it can be dispensed with the better. Continued too long, the shading would make the cuttings weak and spindly.

Soil.—Except for particular cases, nothing is better than silver sand placed over a layer of soil in which the plant

delights, and beneath this the pot to be filled with drainage. In general cases, half an inch of sand, and three quarters of an inch of sandy peat, or sandy loam will be amply sufficient; and the nearer the cuttings are inserted to the side of the pot, the sooner will they protrude roots. When a bell-glass is used that would come close to the side of the pot, it is a good thing to put one pot inside a larger one, fill up the space between them to within a requisite distance of the top with drainage, then with the soil and sand, and place the cuttings firmly round the outside of the inner pot. In this case the inner pot may be empty, be supplied with damp moss, or even, in some peculiar cases, filled with water, though the latter would be more generally applicable to stove than greenhouse plants. The turning of a smaller pot topsy-turvy inside of a large one, so that the inner forms a sort of chimney, and inserting the cuttings round the sides of its inverted bottom, now the top, is also a good plan, especially when it is desirable to give the plants the stimulus of a good bottom heat, as, by stopping with potsherd the hole in the bottom, now uppermost, the stimulus is applied to the base of the cutting; and thus roots are encouraged, rather than lengthened upwards.

Bottom-heat.—Unless where fresh growth is rapidly making, and the plants have received extra stimulus on purpose, *greenhouse plants* should not have bottom-heat, in general, until a callus is formed at their base. When that is done, a mild, moist bottom-heat—a heat a medium between the general temperature of a greenhouse and a stove—may be given with advantage. When, however, in many hard-wooded plants, heat has been given to cause the protrusion of short new shoots from one to two inches in length, and these are taken off just as their bottoms are getting a little firm, then in their case a mild, sweet hotbed at once will just suit them, care being taken that the atmosphere is not kept too hot, to cause more elongation upwards. *Stove plants*, on the other hand, as they require more heat at all times than greenhouse plants, so scarcely ever do their cuttings suffer from bottom-heat, though pretty strong; and hence it often happens, that they are more readily propagated than greenhouse shrubs.

Cuttings of hardy Fruit-trees.—Any

time between the fall of the leaf and the first swelling of the bud in the spring, such cuttings may be put out. As a general rule, we should say that the end of October is a very good time, provided the trees in question have cast their leaves. By early planting, the wounded portions become, as it were, healed by the callosity which will frequently form at the lower end, even during the winter. It is of importance to select a good situation: a sunny and dry spot is a bad one; and one too shady, especially if with overhanging trees, is apt to cause the cuttings to grow weakly. The north side of a wall is very good, placing the cuttings not nearer than within four feet of the wall, and not farther than seven feet. Here they will get shading during the more difficult portion of their rooting period, which will be during April and May; and by Midsummer, or soon after, when all those which will succeed will be well rooted, they will both receive and enjoy a liberal amount of sunshine. The cuttings must be made somewhat firm at their lower end; and if a very dry time occurs in March, April, or May, it may become necessary to lightly sprinkle them occasionally.

CUTTING-IN is shortening the branches.

CYANA'NTHUS. (From *kyanos*, blue, and *anthos*, a flower. Nat. ord., *Phloxworts* [*Polemoniaceæ*]. Linn., 5-Pentandria 1-Monogynia. Allied to *Polemonium*.)

A pretty little hardy herbaceous plant; requires the same treatment as alpine plants. Divisions and cuttings under a hand-light; sandy soil.

C. lobatus (lobed). $\frac{1}{2}$. Purple, blue. August. Chinese Tartary. 1844.

CYANE'LLA. (From the diminutive of *kyanos*, blue. Nat. ord., *Lilyworts* [*Liliaceæ*]. Linn., 6-Hexandria 1-Monogynia. Allied to *Anthericum*.)

Pretty little bulbous plants, from the Cape of Good Hope, which succeed best planted out in a deep border of light, rich compost in front of a greenhouse, to be protected from frost like *Ixias*, and such-like bulbs. All the small bulbs we recommend to be thus treated may be grown in pots like *Ixias*. Increased by offsets.

C. alba (white). 1. White. July. 1819.
— *Cupensis* (Cape). 1. Blue. July. 1769.
— *lineata* (lined). 1. Striped. July. 1816.
— *lutea* (yellow). 1. Yellow. July. 1788.
— *odoratissima* (most fragrant). 1. Red. July. 1826.
— *orchidiformis* (orchis-like). 1. Blue. August. 1826.

CYANTHA'MNUS. (From *kyanos*, blue, and *thannos*, a shrub; referring to its flowers. Nat. ord., *Rueworts* [*Rutaceæ*].

Linn., 8-Octandria 1-Monogynia. Allied to *Boronia*.)

Greenhouse evergreen shrubs, from Swan River. Cuttings in moderate heat, in sand, under a glass; sandy loam and peat.

C. ramosus (branched). Blue.
— *tenuis* (slender). Blue.

CYANO'TIS. (From *kyanos*, blue, and *ous*, an ear; referring to the shape of the petals. Nat. ord., *Spiderworts* [*Commelinaceæ*]. Linn., 6-Hexandria 1-Monogynia. Allied to *Tradescantia*.)

Rich soil; *C. barbat'a* is increased by root division, the others by seed.

C. axillaris (axillary). 1. Blue. August. E. Ind. 1822. Greenhouse biennial.
— *barbat'a* (bearded). 1. Blue. August. Neapaul. 1824. Hardy perennial.
— *cristata* (crested). 1. Blue. August. Ceylon. 1770. Greenhouse biennial.

CYATHE'A. (From *kyatheion*, a little cup; in reference to the appearance of the spore or seed-cases on the back of the leaves. Nat. ord., *Ferns* [*Polypodiaceæ*]. Linn., 24-Cryptogamia 1-Filices.)

Stove evergreen tree-ferns, except otherwise specified; loam and peat; root division or seeds.

C. arbo'rea (tree). 15. W. Ind. 1793.
— *dealbat'a* (whitened). New Zealand. Greenhouse.
— *elegans* (elegant). Jamaica. 1843.
— *exce'lsa* (tall). 20. Mauritius. 1825.
— *integ'ra* (entire-leaved). Isle of Luzon.
— *medullaris* (pithy). New Zealand. Greenhouse.
— *petiolat'a* (long-leaf-stalked). Jamaica.

CYATHO'DES. (From *kyathos*, a cup; referring to the form of the limb, or expanded opening of the flower. Nat. ord., *Epacrids* [*Epacridaceæ*]. Linn., 5-Pentandria 1-Monogynia. Allied to *Styphelia*.)

Greenhouse evergreens with white flowers, from New Holland. Peat and loam; cuttings in sand, with a little peat, under glass.

C. acerosa (chaffy). 8. July. 1825.
— *glau'ca* (milky-green). 20. April. 1818.
— *oxycedrus* (prickly-cedar). 6. April. 1822.

CYC'AS. (Greek name for a Palm. Nat. ord., *Cycads* [*Cycadaceæ*]. Linn., 22-Diacia 12-Polyandria.)

This order is in close affinity with *Conifers*. Dr. Lindley says, "The undoubted remains of *Cycads* attest their having once formed a considerable portion of the vegetation of Great Britain." Stove herbaceous perennials; require plenty of pot room, rich, sandy loam, and moist heat. Young plants are often obtained from suckers.

C. angulat'a (sharp-cornered). 4. N. Holland. 1824.
— *circinalis* (round-leaved). 3. E. Ind. 1800.
— *glau'ca* (milky-green). 4. E. Ind. 1818.
— *revolut'a* (rolled-back-leaved). 3. July. China. 1737.

— *squarros'a* (spreading). 4. E. Ind. 1824.

CY'OLAMEN. Sowbread. (From *kyelicos*, circular; referring to the shape of the

corm, or bulb-like root. Nat. ord., *Primulacæ*. Linn., 5-Pentandria 1-Monogynia.)

Cyclamens are very acrid, yet are the favourite food of wild boars of Sicily, whence the English name. Beautiful bulbous plants.

HARDY.

- C. Co'um* (Cos). $\frac{1}{2}$. Lilac, red. February. South Europe. 1596.
 — *Europæ'um* (European). $\frac{1}{2}$. Lilac, red. August. Switzerland. 1596.
 — *hederifo'ium* (ivy-leaved). $\frac{1}{2}$. Purple. April. Britain.
 — *alb'idum* (whitish-flowered). $\frac{1}{2}$. White. July. Britain.
 — *purpura'scens* (purplish-flowered). $\frac{1}{2}$. Purple. July. Britain.
 — *Ibe'ricum* (Georgian). $\frac{1}{2}$. Asiatic Georgia. 1831.
 — *latifo'ium* (broad-leaved). $\frac{1}{2}$. Red. April. South Europe. 1800.
 — *linearifo'ium* (narrow-leaved). $\frac{1}{2}$. Purple. April. South Europe. 1824.
 — *litora'le* (shore-inhabiting). $\frac{1}{2}$. Deep rose. Lake of Como. 1845.
 — *Neapolita'num* (Neapolitan). $\frac{1}{2}$. Red. April. Italy. 1824.
 — *ve'rnum* (spring). $\frac{1}{2}$. Purple. April. South Europe.

GREENHOUSE.

- C. Pe'rsicum* (Persian). $\frac{1}{2}$. Red, white. February. Cyprus. 1731.
 — *albifo'ium* (white-flowered). $\frac{1}{2}$. White. February. Cyprus. 1731.
 — *inodo'rum* (scentless). $\frac{1}{2}$. Red, white. February. Cyprus. 1731.
 — *lacinia'tum* (jagged-petaled). $\frac{1}{2}$. Red, white. April.
 — *lila'ceum* (lilac-coloured-flowered). $\frac{1}{2}$. Lilac. February.
 — *odora'tum* (scented). $\frac{1}{2}$. Red, white. February. Cyprus. 1731.
 — *puncta'tum* (spotted-flowered). $\frac{1}{2}$. White, lilac. March.
 — *repand'um* (wavy-edged). $\frac{1}{2}$. April. Greece. 1816.

Propagation: by Seed.—This is the only way of propagating *Cyclamens*. The roots, being a solid corm, will not divide successfully. Gather the seed as soon as ripe, dry it slowly, and sow it in February, in shallow, wide-mouthed pots, in a compost of peat, loam, and sand, covering the seeds scarcely a quarter of an inch deep; place them in a cold frame, excepting *C. Pe'rsicum*, which should be placed in a greenhouse, on a shelf near the glass; sow the seeds thinly, so that they may remain in the seed-pots for one year.

Soil.—Equal parts light, turfy loam, sandy-peat, and leaf-mould; or, if this cannot be had, half a part of very rotten dung may be substituted.

Summer Culture.—Pot in autumn, and when spring comes in most of the kinds will be in flower. They require then a good supply of water. Though some of

the species are hardy, yet it is safer to cultivate them in pots in frames, and bring them into the greenhouse when in flower. Some of the varieties of *C. Pe'rsicum* are very fragrant; but there is no certainty that the seedlings from them will continue fragrant. Seedlings of a year old should be potted singly into thumb-pots, and be re-potted in April in $3\frac{1}{2}$ -inch pots, and kept in a gentle heat, to encourage the bulbs to grow larger. As soon as the flowering season is over, set them out of doors, giving no water; and as soon as the seed is gathered, and all the leaves dead, trim these off, and lay the pots on one side, to keep them dry till the plants require potting.

Winter Culture.—When frost begins, shift them into pots of a size in proportion to that of the bulbs, leaving the bulbs just out of the soil, excepting *C. Co'um*, which should be covered about half an inch. The largest bulbs may require pots six inches in diameter. As soon as potted, place them in a cold frame, covering up securely from frost; give air on all favourable occasions, and water very moderately till the leaves are full-grown and the flowers begin to appear, when it may be more liberally given.

Insects.—*Slugs, green fly, and wire-worms* prey upon them.

Diseases.—Sometimes when the bulbs become large they lose the power of growing again; the buds on the crown appear to be dead. We know of no remedy.

Culture in the open air.—All the species, excepting *C. Pe'rsicum* and its varieties, will live in a warm border of the compost out of doors; but, on account of their early blooming, the flowers are often injured by late frosts. The border should be well drained, and a covering of tanner's bark or coal-ashes should be spread over the roots in autumn, and allowed to remain on till the warm weather of spring arrives, when it may be removed and renewed in the autumn. The bulbs may either be taken up and replanted in October, or allowed to remain for two years.

CYCLOBO'THERA. (From *kyklos*, a circle, and *bothros*, a pit; in reference to a cavity at the bottom of each sepal. Nat. ord., *Lilyworts* [*Liliacæ*]. Linn., 6-Hexandria 1-Monogynia. Allied to *Calochortus*.)

Little hardy or half-hardy bulbs, with drooping flowers; succeed best in a sunny border of light soil; to be protected in winter. Readily increased

by the little viviparous bulbs produced on the upper part of the stems.

- C. alba* (white-petaled). 1. White. August. California. 1832.
— barba'ta (bearded). 2. Yellow. August. Mexico. 1827.
— la'tea (yellow-petaled). 1½. Yellow. September. Mexico. 1827.
— monophyl'la (single-leaved). ¾. Bright yellow. California. 1848.
— pulche'lla (pretty-flowered). 1. Yellow. August. California. 1832.
— purpu'rea (purple). 3. Purple, green. August. Mexico. 1827.

CYCLO'GYNE. (From *kyklos*, a circle, and *gyne*, a stigma, or female organ; in reference to the disposition of the pistils. Nat. ord., *Leguminous Plants* [Fabacæ]. Linn., 17-*Diadelphia* 4-*Decandria*. Allied to *Galega*.)

C. canescens (hoary). 1. Purple. May. Swan River. Greenhouse evergreen.

CYCNO'CHES. Swan-neck. (From *kyknos*, a swan, and *auchen*, the neck; in reference to the long and gracefully-curved column. Nat. ord., *Orchids* [Orchidacæ]. Linn., 20-*Gynandria* 1-*Monandria*. Allied to *Cyrtopodium*.)

Stove orchids. Strong, moist heat whilst growing; rough, fibry peat, and half-decayed leaves, with a little sand; root division.

- C. barba'tum* (bearded). White, pink. New Grenada.
— chlorochil'tum (greenish-yellow-lipped). 2. Yellowish. June. Demerara. 1838.
— Cummingii (Cumming's). White, yellow. June. Singapore.
— Loddige'sii (Loddige's). 1. White, purple. May. Surinam. 1830.
— leucochil'tum (white-lipped). 1. Yellow, white. June. Guiana.
— macula'tum (spotted). 1. Buff, purple. June. Mexico. 1839.
— pentadactylon (five-fingered). 1. Yellow, brown. March. Brazil. 1841.
— stelliferum (starry). Green, brown. May. Oaxaca. 1843.
— ventricosum (inflated-lip). 2. Green, white. Guatemala. 1835.
— Egertonianum (Sir P. Egerton's). 2. Purple, green, pink. June. Guatemala. 1840.

CYDO'NIA. Quince. (Its native place *Cydon*, in Candia. Nat. ord., *Appleworts* [Pomacæ]. Linn., 12-*Icosandria* 2-*Diptagynia*.)

Hardy deciduous trees and shrubs. *C. Japo'nica* is one of our handsomest flowering shrubs; layers in September, and to remain until that time twelve months before taken off; also by seeds. See QUINCE.

- C. Japo'nica* (Japan). 4. Scarlet. Japan. 1815.
— alba (white-flowered). 4. White.
— carnea (flesh-coloured). Flesh-coloured. March.
— flore-se-mi-pleno (semi-double-flowered). 4. Red. August.

C. Sine'nsis (Chinese). 15. Pink. May. China. 1818.

- pyramida'tis* (pyramidal). White. May. 1847.
— vulga'ris (common Quince). 20. White. May. Austria. 1873.
— Lusita'nica (Spanish). 20. White. May. Spain.
— malifo'rnis (apple-formed). 20. White. May. 1873.
— oblo'nga (oblong-fruited). 20. White. May. Europe.

CYLI'STA. (From *kylistos*, twining; referring to the habit of the plants. Nat. ord., *Leguminous Plants* [Fabacæ]. Linn., 17-*Diadelphia* 4-*Decandria*. Allied to *Rhynchosia*.)

Stove evergreen twiners. Loam and peat; cuttings in sand, under glass, in bottom-heat.

- C. albifo'ra* (white-flowered). 6. White. April. Mauritius.
— scario'sa (membranous). 4. Yellow. E. Ind. 1806.
— tomento'sa (woolly). 4. Yellow. E. Ind. 1816.
— villo'sa (shaggy). 6. Yellow. April. Cape of Good Hope. 1776.

CYMBID'IUM. (From *kymbe*, a boat; referring to a hollow recess in the lip, or labellum. Nat. ord., *Orchids* [Orchidacæ]. Linn., 20-*Gynandria* 1-*Monandria*.)

Stove orchids. Fibry loam, fibry peat, and leaf-mould, well drained; root division.

- C. aloifo'lum* (aloe-leaved). 1. Purple, black. September. E. Ind. 1789.
— bi'color (two-coloured-flowered). Purple, crimson. April. Ceylon. 1837.
— chloranthum (greenish-yellow-flowered). Yellow, crimson. May. Nepaul. 1840.
— Devonianum (Duke of Devonshire's). 1. White, crimson. March. Khooseea. 1837.
— diu'nnum (day-flowering). Bahama.
— ebu'rneum (ivory-white-flowered). White, yellow-striped. May. E. ind. 1846.
— e'legans (elegant). Yellow. May. Nepaul. 1840.
— Finlaysonianum (Finlayson's). Cochin China.
— Gibso'nii (Gibson's). White, red. January. Sylhet. 1837.
— giga'nteum (gigantic). Brown, purple. Nepaul. 1837.
— iridifo'lum (iris-leaved). Dark brown. March. E. Ind. 1837.
— lancefo'lum (lance-leaved). ¾. White, red. September. Nepaul. 1822.
— ma'didum (moist). Olive-green. May. E. Ind. 1839.
— marginatum (red-edged-sepal). ¾. Yellow, purple. Brazil.
— Mastersii (Masters's). 1½. White, yellow, red. August. E. Ind. 1841.
— ochroleu'cum (yellowish-white). Yellow. Trinidad.
— pe'ndulum (hanging-down). 8. Yellow, red, white. June. Nepaul. 1838.
— brevia'dbre (short-lipped). 2. Green, red, yellow. June. Singapore. 1840.
— pube'scens (downy). 1. Purple, yellow. April. Singapore. 1838.
— Sine'nse (Chinese). 1½. Purple brown. China. 1793.

- C. suave* (sweet). Green, brown. May. Australia. 1826.
tripterum (three-winged). White. July. Jamaica. 1790.

CYNA'NCHUM. (From *kyon*, a dog, and *agche*, to kill; referring to its poisonous qualities. Nat. ord., *Asclepiads* [*Asclepiadaceæ*]. Linn., 5-*Pentandria* 2-*Digynia*. Allied to *Asclepias*.)

Cuttings root readily; the hardy kinds in common garden-soil; usual stove or greenhouse treatment for the others.

STOVE EVERGREEN TWINERS.

- C. fimbria'tum* (fringed). 10. Purple. July. Cumana. 1826.
Heynia'tum (Heynes's). 6. White. E. Ind. 1825.
hirsu'tum (hairy). 6. Trinidad. 1825.

GREENHOUSE EVERGREEN TWINERS.

- C. Cape'nsæ* (Cape). 6. White. July. Cape of Good Hope. 1890.
pilo'sum (soft-haired). 5. White. July. Cape of Good Hope. 1726.

HARDY HERBACEOUS PERENNIALS.

- C. acu'tum* (pointed-leaved). 3. White. July. Spain. 1596.
cirrho'sum (tendriled). 3. 1825. Deciduous twiner.
exco'lsum (tall). 10. White. July. Barbary. 1816. Deciduous twiner.
lu'teum (yellow-flowered). 2. Yellow. June. Europe. 1596.
me'dium (middle-sized). 3. White. June.
mela'nthos (black-flowered). 3. Purple. July. 1818. Deciduous twiner.
Monspel'iacum (Montpelier). 3. White. August. South Europe. 1596.
ni'grum (black). 3. White. July. South Europe. 1596.
ro'seum (rosy). 3. Purple. July. Davuria. 1818. Deciduous twiner.
villo'sum (shaggy). 3. White. July. 1821. Deciduous twiner.
Vinceto'sium (Vincetoxicum). 2. White. July. Europe. 1596.

CYNA'RA. Artichoke. (From *kyon*, a dog; the spines on the involucre, or guard-leaves, immediately below the flower, being likened to dogs' teeth. Nat. ord., *Composites* [*Asteraceæ*]. Linn., 10-*Syngenesia* 1-*Æqualis*.)

Hardy herbaceous perennials, except where otherwise stated. Increased by seeds and root division. See ARTICHOKE and CARDOON.

- C. cardu'nculus* (cardoon). 65. Blue. August. Candia. 1668.
fe'ros (fierce). 5. Blue. July. Italy. 1820.
glomeru'la (clustered). 4. Blue. August. Cape of Good Hope. 1824. Half-hardy.
ho'rrida (horrid). 6. Purple. August. Madeira. 1768. Greenhouse.
integrifo'lia (whole-leaved). 4. Blue. July. Spain.
pygma'ea (pigmy). 1. Purple. July. Spain. 1820.
scolymus (scolymus. Artichoke). 8. Purple. August. South Europe. 1548.
spinosi'ssima (spinicest). 4. Blue. July. Sicily. 1826.

CYNIPS ROSE, C. Bedegaris, or Rhodites rosea, is one of the Gall-forming insects. It deposits its eggs in a bud of the young shoots of the Dog-Rose and Sweet Briar. The grubs or larvæ hatched from these eggs produce those galls, or lumps, covered with green and reddish fibres looking like moss, so frequently found upon those shrubs.

CYNOGLO'SSUM. Hound's Tongue. (From *kyon*, a dog, and *glossa*, a tongue; referring to the shape of the leaves. Nat. ord., *Borageworts* [*Boraginaceæ*]. Linn., 5-*Pentandria* 1-*Monogynia*.)

Nearly all hardy; some are very pretty border-flowers; common soil; seeds or root division.

ANNUALS.

- C. cane'scens* (hoary). 2. Blue. July. E. Ind. 1819.
diffu'sum (spreading). White. July. India. 1820.
hirsu'tum (hairy). 1. Blue. July. Cape of Good Hope. 1806.
lanceola'tum (spear-head-leaved). White, blue. July. Africa. 1806.

BIENNIALS.

- C. Apenni'num* (Apennine). 6. Red. May. Italy. 1731.
bi'color (two-coloured). 2. White, purple. July. Germany. 1820.
celesti'num (celestial-blue). 2. White, blue. August. India. 1837.
cheirifo'lum (wallflower-leaved). 1½. Blue. June. Levant. 1596.
clandestinu'm (clandestine). 2. Brown. July. Spain. 1820.
Colu'mna (Columna's). 2. Blue. July. Apennines. 1825.
Diosco'ridis (Dioscorides's). 2. Purple. July. France. 1820.
divarica'tum (straggling). Purple. June. Siberia. 1837.
elonga'tum (lengthened). 2½. Flesh. July. 1819.
glochidia'tum (burred). 2. Blue. June. India. 1837. Greenhouse.
glomera'tum (clustered). 2. June. N. Amer. 1812.
Hæ'nkii (Hænke's). 2. Blue, purple. July. Bohemia. 1819.
holoseri'ceum (velvety). 2. Violet. July. Siberia. 1821.
laterifo'rum (side-flowered). Purple. June. Europe. 1838.
officina'le (shop). 2. Purple, red. June. Britain.
pilo'tum (painted). 2. Light blue. August. Madeira. 1658.
syloba'ticum (wood). 3. Blue. June. Britain.
umbella'tum (umbel-flowered). 2. Purple. June. Hungary. 1817.

PERENNIALS.

- C. amplexicaule* (stem-clasping). 2. Blue. June. N. Amer. 1812.
anchuso'ides (anchusa-like). 1. Blue. May. Cashmere. 1640.
austri'ale (southern). 2. Pale red. June. N. Holland. 1820. Greenhouse.
grandifo'rum (large-flowered). 3. Blue. white. India. 1830.

- C. longistolum* (long-flowered). 1½. Purple, red. June. India. 1839.
 — *Magellense* (Magellan). 1. Purple. June. Naples. 1823.
 — *tomentosum* (downy-flowered). Violet. May. Italy. 1823.
 — *Virginicum* (Virginian). Blue. White. June. N. Amer. 1812.

CYNOME' TRA. (From *kyon*, a dog, and *metra*, matrix; referring to the seed-pods. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 10-*Decandria* 1-*Monogynia*. Allied to *Hardwickia*.)

Stove evergreen trees, from the East Indies. Loam and sandy peat; cuttings in sand, under glass, with bottom-heat.

- C. cauliflora* (stem-flowering). 30. Red. 1804.
 — *polyandra* (many-stamened). 20. Red. 1822.

CYPE'LLA. (From *kypellon*, a goblet or cup; referring to the form of the flowers. Nat. ord., *Irids* [Iridaceæ]. Linn., 16-*Monadelphia* 1-*Triandria*. Allied to *Herbertia*.)

Pretty little half-hardy bulbs, requiring the same treatment as *Ixias*. Sandy loam and peat; offsets.

- C. Drummondii* (Drummond's). Purple, yellow. June. San Felipe. 1834.
 — *Herbertii* (Herbert's). 1. Vermilion. July. Buenos Ayres. 1823.
 — *plumbæa* (lead-coloured). Blue. Mexico. 1836.

CYPERUS. This genus of the Sedges would not deserve notice here if *C. alternifolius*, a native of Madagascar, and *C. papyrus* (see *PAPYRUS*) were not sometimes grown in the stove aquarium.

CYPHIA. (From *kypnos*, curved; referring to the shape of the style and stigma. Nat. ord., *Bellworts* [Campanulaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Campanula*.)

Greenhouse plants, from Cape of Good Hope. The perennial species root freely from young cuttings; the annual kinds by seed; loam, peat, and sand.

- C. bulbosa* (bulbous). ½. Pale blue. August. 1791. Annual.
 — *cardaminea* (cardamine-like). 3. July. 1823. Herbaceous perennial.
 — *incisa* (cut-leaved). ½. Pale red. July. 1819. Annual.
 — *phytelma* (rampion). 1½. Pink. February. 1822. Perennial tuber.
 — *volvulilis* (twining). 1. Pale blue. 1795. Annual.

CYPRESS. See *CUPRESSUS*.

CYPRIPE'DIUM. Ladies' Slipper. (From *Kypris*, Venus, and *podion*, a slipper. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-*Gynandria* 1-*Monandria*.)

Both the stove and hardy species of these orchids succeed well in turfy peat, mixed with a little loam, charcoal, and potsherds. The hardy kinds, when grown in pots, should have frame protection during the winter months; root division.

STOVE.

- C. barbatum* (bearded). ½. Purple, white, red. April. Malacca. 1838.
 — *guttatum* (spotted). ¾. Yellow. April. Siberia. 1829.
 — *insigne* (striking). 1. Green, red, orange. June. Nepal. 1819.
 — *trapezium* (trapean). 1. Yellow. June. Mexico. 1844.
 — *Lo'vi* (Mr. Low's). 1. Variegated. April. Borneo. 1847.
 — *venustum* (handsome). ¾. Green, red. October. Nepal. 1816.

HARDY.

- C. acaulis* (stemless). Rose, purple. May. N. Amer. 1786.
 — *album* (white). 1½. White. May. N. Amer. 1800.
 — *aristatum* (ram's-head). ½. Green, rose. April. Canada. 1808.
 — *calceolus* (common slipper). 1. Yellow. June. England.
 — *Helveticum* (Swiss). 1. Yellow. June. Switzerland. 1825.
 — *candidum* (white). 1. White. June. N. Amer. 1826.
 — *maeranthos* (large-flowered). ¾. Purple. May. Siberia. 1828.
 — *parviflorum* (small-flowered). 1. Yellowish. June. N. Amer. 1759.
 — *pubescens* (downy). 1. Yellow, purple. June. N. Amer. 1790.
 — *purpureum* (purple-flowered). ¾. Purple. September. Archipelago. 1836.
 — *spectabile* (remarkable). 1½. White, purple. June. N. Amer. 1731.
 — *incarnatum* (flesh-coloured). White, purple. June. N. Amer.
 — *album* (white). White. June. N. Amer. 1827.
 — *ventriosum* (swollen). ¾. Dark purple. April. Siberia. 1829.

CYRILLA. (After *D. Cyrillo*, an Italian botanist. Nat. ord., *Cyrillads* [Cyrillaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Heathworts*.)

Greenhouse evergreen shrubs. Sandy loam and peat; cuttings in sand, under glass, with slight bottom-heat.

- C. Antillarum* (Antilles). 6. White. July. Antilles. 1824.
 — *Caroliniana* (Carolina). 6. White. July. Carolina. 1765.

CYRTANTHUS. (From *kyrtos*, curved, and *anthos*, a flower; the flowers bend down from the summit of the scape, or stalk. Nat. ord., *Amaryllids* [Amaryllidaceæ]. Linn., 6-*Hexandria* 1-*Monogynia*. Allied to *Vallota*.)

Greenhouse bulbs, from Cape of Good Hope. *C. obliquus* and *C. carneus* have evergreen leaves; they, therefore, require to be watered all the year round. Strong, friable loam suits them best in deep, narrow pots, and the bulbs covered. Greenhouse culture from April to November, and an airy place in the stove near the glass in winter. The rest are deciduous, and require to be kept dry in winter. Offsets.

- C. angustifolius* (narrow-leaved). 1. Orange. May. 1774.

- C. carneus* (flesh-coloured). 1. Flesh. August.
 — *collinus* (hill). 2. Crimson. June. 1816.
 — *obliquus* (twisted-leaved). 2. Green, orange.
 June. 1774.
 — *odoratus* (sweet-scented). 2. Crimson. June.
 1818.
 — *paillidus* (pale). 1. Pink. June. 1822.
 — *spiralis* (spiral-leaved). 1. Scarlet. June. 1790.
 — *striatus* (streaked). 2. Orange. July.
 — *ventricosus* (swollen). 1. Red. June. 1770.

CYRTO'CERAS. United to *Centrostemma*.

CYRTOCHI'LUM. (From *kyrtos*, curved, or concave, and *cheilos*, a lip; the form of the labellum, or lip. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-Gynandria 1-Monandria. Allied to *Acanthophippium*.)

Stove orchids. On blocks of wood, with moss and sphagnum fastened over their roots. Summer, moist temp., 60° to 90°; winter, 55° to 60°; rather dry.

- C. Bietonie'ns* (Bicton). 2. Red. October.
 Guatemala. 1836.
 — *filipes* (thread-stalked). 1. Red, yellow.
 March. Guatemala. 1838.
 — *flavescens* (straw-coloured-flowered). 1. Yellowish. June. Mexico. 1830.
 — *graminifolium* (grass-leaved).
 — *maculatum* (spotted). 1. Green, purple.
 Vera Cruz. 1837.
 — *ecornatum* (hornless). 1. Yellow, purple.
 March. Mexico.
 — *parviflorum* (small-flowered). 1. White, yellow, purple. February. Guatemala. 1829.
 — *Russellianum* (Russell's). Spotted.
 March. Guatemala.
 — *myrtacinum* (whiskered). 1½. Yellowish.
 October. Peru. 1836.
 — *stellatum* (starry-flowered). Cream, pink.
 March. Brazil. 1839.

CYRTOGO'NIUM. (From *kyrtos*, curved, and *gonu*, a knee; referring to the creeping stems, or rhizomes. Nat. ord., *Ferns* [Polypodiaceæ]. Linn., 24-Cryptogamia 1-Filices. Allied to *Platycerium*.)

Stove Ferns, with brown spores. Divisions; peat and loam. Summer temp., 60° to 80°; winter, 60° to 55°.

- C. costatum* (ribbed). July. Java.
 — *crispatum* (curled). May. E. Ind.
 — *diversifolium* (various-leaved). May. E. Ind.
 — *flagelliferum* (rod-bearing). E. Ind. 1825.
 — *laciniatum* (jagged-leaved). May. Isle of Leyte.
 — *punctulatum* (small-dotted). May. Java.
 — *repandum* (waved). May. E. Ind.
 — *scandens* (climbing). May. E. Ind.
 — *serratifolium* (saw-leaved). May. E. Ind.
 — *sinuosum* (crooked). May. Isle of Luzon.
 — *subcrenatum* (slight-scolloped). May. E. Ind.
 — *virens* (green). May. Java.

CYRTO'MIUM. (From *kyrtos*, curved; the shape of the spore-cases, or seed-vessels. Nat. ord., *Ferns* [Polypodiaceæ]. Linn., 24-Cryptogamia 1-Filices.)

Stove Ferns. Culture as for *Cyrtogonium*.

- C. caryotideum* (caryota-like). Yellow. June.
 E. Ind.

- C. falcatum* (sickle-like-leaved). Yellow. June.
 S. Amer. 1839.

CYRTOPE'RA. (From *kyrtos*, curved, and *pera*, a small sack; alluding to the sack-like appendage to the labellum, or lip. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-Gynandria 1-Monandria. Allied to *Galeandra*.)

Stove orchids. Root division; peat, rotten wood, and potsherds.

- C. flava* (yellow). 3. Yellow. June. E. Ind. 1831.
 — *flavescens* (yellowish). Pale yellow. June. Mexico. 1830.
 — *plicata* (plaited-leaved). India. 1840.
 — *Woodfordii* (Woodford's). Pink. September. S. Amer. 1819.

CYRTOPHLE'BIUM. (From *kyrtos*, curved, and *phleps*, a vein; referring to the disposition of the veins in the leaves. Nat. ord., *Ferns* [Polypodiaceæ]. Linn., 24-Cryptogamia 1-Filices.)

Stove Ferns. Culture as for *Cyrtogonium*.

- C. decurrens* (leaf-bordered-stemmed). 4. Yellow. July. Brazil.
 — *nitidum* (shining). Yellow. July. W. Ind.

CYRTOPO'DIUM. (From *kyrtos*, curved, and *poca*, a foot; referring to the form of the labellum, or lip. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-Gynandria 1-Monandria.)

Stove orchids. Divisions; peat, sphagnum, and broken pots; plants raised above the pots, or suspended in shallow baskets. Summer temp., 60° to 90°; winter, 55° to 60°.

- C. Andersonii* (Anderson's). 2. Yellow. April.
 St. Vincent. 1804.
 — *cristatum* (crested).
 — *flavum* (yellow). 2. Yellow. 1831.
 — *glutiniferum* (clammy). Yellow. S. Amer.
 — *punctatum* (spotted). 3. Yellow, red. April. Brazil.

- *Wilmorei* (Wilmore's) 4½. Yellowish-red.
 June. Venezuela.

CYSTO'PTERIS. A genus of Ferns, composed of *aspidium*, *alpinum*, *atomarium*, *bulbiferum*, *dentalium*, *fragile*, and *regium*.

CYTISUS. (From *Cythus*, one of the Cyclades, where one of the species was first found. Nat. ord., *Leguminosæ* [Fabaceæ]. Linn., 16-Monadelphia 6-Decandria.)

Shrubs and trees. Readily increased by seeds; choice kinds are grafted or budded upon the *Larburnum*; common garden-soil.

GREENHOUSE AND STOVE EVERGREENS.

- C. elegans* (elegant). 3. Yellow. Cape of Good Hope. 1821.
 — *filipes* (thread-stemmed). White. March. Teneriffe. 1838.
 — *glomeratus* (crowded). 3. Zanzibar. 1826. Stove.
 — *laniger* (woolly). 2. Yellow. June. Spain. 1821. Half-hardy.
 — *rigidus* (stiff-spined). 6. Yellow. June.

- C. nubigenus* (cloud-born). 6. Yellow. May. Tenerife. 1779.
 — *proliferus* (proliferous). 2. Yellow. April. Canaries. 1779.
 HARDY DECIDUOUS, &C.
C. Æolæus (Æolian). 7. Yellow. May. Stromboli. 1836.
 — *flœre-ple'no* (double-flowered). White. May. England.
 — *foliis variegat'is* (variegated-leaved). Yellow. May. Gardens.
 — *alb'idus* (white). 4. White. June. South Europe.
 — *albus* (white. *Portugal Laburnum*). 8. White. May. Portugal. 1752.
 — *incarnat'us* (flesh-coloured). 8. Flesh. May. Portugal. 1752.
 — *luteus* (yellow-flowered). 8. Yellow. May. Gardens.
 — *alpinus* (alpine. *Scotch Laburnum*). 30. Yellow. June. Europe. 1596.
 — *argent'us* (silver-leaved). 3. Yellow. August. France. 1739.
 — *Austriacus* (Austrian). 3. Yellow. July. Austria. 1741.
 — *biflorus* (two-flowered). 3. Yellow. May. Hungary. 1760.
 — *calyc'enus* (large-calyxed). 2. Yellow. August. Tauria. 1820.
 — *capitat'us* (round-headed). 3. Yellow. July. Austria. 1774.
 — *ciliat'us* (hair-fringed). 3. Yellow. July. Carpathia. 1817.
 — *elongat'us* (long-branched). 4. Yellow. May. Hungary. 1804.
 — *falcat'us* (sickle-shaped). 3. Yellow. July. Hungary. 1816.
 — *grandiflorus* (large-flowered). 4. Yellow. June. Portugal. 1816.
 — *hirsut'us* (hairy). 5. Yellow. July. South Europe. 1739.
 — *laburnum* (common laburnum). 15. Yellow. May. Switzerland. 1596.
 — *foliis variegat'is* (variegated-leaved). 15. Yellow. May.
 — *fragrans* (fragrant). 15. Yellow. June. Gardens.
 — *pendulus* (hanging-down-branched). Yellow. May.
 — *quercifolius* (oak-leaved). 15. Yellow. May.
 — *Uralensis* (Ural). May. Russia. 1832.
 — *leucanthus* (white-flowered). 4. Pale yellow. June. Hungary. 1806.
 — *mol'lis* (soft). 4. Yellow. June. 1818.
 — *multiflorus* (many-flowered). 4. Yellow. June. Europe. 1818.
 — *microphy'lla* (small-leaved). 2. Yellow. May.
 — *nanus* (dwarf). 1½. Yellow. May. Levant. 1816.
 — *ni'gricans* (black-rooted). 3. Yellow. June. Austria. 1730.
 — *orient'al'is* (eastern). 3. Yellow. June. South Europe. 1818.
 — *patens* (spreading). 4. Yellow. June. Portugal. 1752.
 — *polytrichus* (many-haired). 1½. Yellow. June. Tauria. 1818.
 — *purpureus* (purple-flowered). 2. Purple. Austria. 1792.
 — *albiflorus* (white-flowered). 2. White. June. Austria.
 — *pygma'us* (pigmy). 1. Yellow. June. Calceae.
 — *racem'us* (raceme-flowered). 3. Yellow. July. 1835. Evergreen.
C. rhodophe'na (beautiful). 2. Yellow. May.
 — *Ruthenicus* (Russian). 3. Yellow. June. Russia. 1817.
 — *scopa'rius* (common broom). 6. Yellow. June. England.
 — *albus* (white-flowering). 6. White. June. England.
 — *flœre-ple'no* (double-flowered). 6. Yellow. April. England.
 — *foliis variegat'is* (variegated-leaved). 6. Yellow. April. Gardens.
 — *sessiliflorus* (stalkless-flowered). 6. Yellow. July. Italy. 1629.
 — *spin'osus* (spiny. Broom). 2. Yellow. June. South Europe. 1596. Evergreen.
 — *sup'inus* (supine). 1. Yellow. June. South Europe. 1755. Trailer.
 — *triflorus* (three-flowered). 4. Yellow. June. Spain. 1640.
 — *Weldē'nii* (Baron Welden's). 10. Yellow. April. Dalmatia. 1840.
 — *procerus* (lofty). Yellow. June. Portugal. 1816.
 — *serot'inus* (late-flowering). Yellow. July. Hungary. 1826.
 — *so'rdidus* (mean). Yellow, purple. May.
 CZA'CKIA. (After Czack, a Russian botanist. Nat. ord., *Lilyworts* [Liliacæ]. Linn., 6-*Hexandria* 1-*Monogynia*.)
 United to *ANTHERICUM*, which see for culture.
C. kiliast'rum (Liliaster). 1½. White. May. South Europe. 1629.

D.

DACRY'DIUM. (From *dakru*, a tear; referring to the resinous drops, glands, or exudations. Nat. ord., *Taxads* [Taxacæ]. Linn., 21-*Monœcia* 10-*Decandria*. Allied to *Podocarpus* and *Yew*.)

D. taxifol'ium is the *kakatero* of the natives; its young branches, like those of the Norway Spruce, afford a beverage of the same qualities as spruce beer. Greenhouse evergreens. Cuttings of firm young wood in sand, under a glass; peat and loam. Summer temp., 60° to 75°; winter, 35° to 45°.

D. cupressin'um (cypress-like). 16. New Zealand. 1825.

— *clat'tum* (lofty). 20. Pulo Penang. 1830.

— *excels'um* (tall). New Zealand.

— *Franklandi'i* (Frankland's. *Huon Pine*). 100. Tasmania. 1844.

— *Mai* (Mai). New Zealand. 1843.

— *taxifol'ium* (yew-leaved). New Zealand. 1843.

DACTYLICA'PNOS. (From *daktylos*, a finger, and *kapnos*, fumitory; literally, fingered-fumitory, tendrils being finger-shaped. Nat. ord., *Fumeworts* [Fumariacæ]. Linn., 17-*Diadelphia* 2-*Hexandria*.)

Greenhouse perennial climber. Seeds in slight hotbed, in March; cuttings under a glass, in April; sandy loam. If kept over the winter, requires the protection of a cold pit.

D. thalictrifol'ia (thalictrum-leaved). 3. Yellow. brown. August. Nepaul. 1831.

DÆ'MIA. (Its Arabic name. Nat. ord., *Asclepiads* [Asclepiadacæ]. Linn., 5-

Pentandria 2-Digynia. Allied to *Eustegia*.)

Stove evergreen twiners, with white flowers, blooming in July. Cuttings of firm side-shoots in sandy soil, under a glass, and in bottom-heat, in April; peat and loam, both fibry, with a little silver sand. Summer temp., 60° to 85°; winter, 50° to 55°.

- D. bicolor* (two-coloured). 6. E. Ind. 1806.
- *cordata* (heart-leaved). 10. Arabia. 1824.
- *extensa* (extended). 3. E. Ind. 1777.
- *scandens* (climbing). 10. Gambia. 1824.

DAFFODIL. *Narcissus suspensudo-narcissus*.

DAHLIA. (Named after *Dahl*, a Swedish botanist. Nat. ord., *Compositæ* [Asteraceæ]. Linn., 19-Syngenesia 2-Superflua.)

Hardy perennial tubers. Division of the tuberous roots; cuttings when they have grown three or four inches in length, in the spring, and inserted in light, sandy soil, with a little bottom-heat, and hardened off by degrees; seeds for insuring the different species; fresh, rich, light soil. The roots, after the stems are cut down by frost, must be taken up and plunged in dry soil.

D. Barkeria (Miss Barker's). 2. Blush. August. Mexico. 1838.

— *Cervantesii* (Cervantes'). Scarlet. August. Mexico.

— *crocata* (rusty). Scarlet. July. Mexico. 1802.

— *excella* (tall). Light. September. Mexico. 1830.

— *frustranea* (barren-rayed). 6. Scarlet. October. Mexico. 1802.

— *aurantiaca* (orange-coloured). 6. Orange. October. Mexico. 1802.

— *crocea* (saffron). 6. Yellow. October. Mexico. 1802.

— *lutea* (yellow). 6. Sulphur. October. Mexico. 1802.

— *glabrata* (smooth). 3. Lilac. July. Mexico. 1838.

— *scapigera* (long-flower-stemmed). 2. White. June. Mexico. 1837.

— *superflua* (superfluous). 6. Purple. October. Mexico. 1789.

DAHLIA AS A FLORIST'S FLOWER.—The innumerable varieties in our gardens are the descendants of *D. superflua*.

Propagation by Cuttings.—The time for striking these extends from February to August. The young shoots that spring from the bulbs make the best cuttings, and are the most sure to grow; but the young tops taken off at a joint will strike root and form small bulbs even so late as August, and often are more sure to grow in the spring following, if kept in small pots, than roots that have been planted out late. This more particularly applies to new varieties. If the shoots on the old bulbs are numerous, or there appears many buds ready to start, the shoots that have grown three inches long may be slipped off with the finger close to the bulb; but if the shoots are few, or

only one, they must be cut off so as to leave two buds at the base of the shoot to grow again. The cuttings, or slips, must be put in pots filled with light earth, with a layer of pure white sand on the surface, and placed in a gentle hotbed. If the pot of cuttings can be plunged in coal-ashes, or other material, the cuttings will strike the sooner; water very moderately and carefully, and shade from bright sun. They will strike root in a fortnight or three weeks, and should be immediately potted in 3½-inch pots, and kept close for a few days, till they make a few more roots. They may then be placed in a cold frame, shaded from the sun, and protected from frost and wet. Pot them again into 4½-inch pots, before the roots become matted, and then begin to give air daily, and keep them well watered.

By Division.—The roots may be divided from the crown downwards, taking care to have a bud or two to each division. Pot them, if too early to plant out, or plant the division out at once in their places, but not earlier than the middle of April.

By Seed.—Save the seed from such double flowers as are partially fertile, having bright distinct colours and good form. Gather it as soon as ripe, and hang the pods up in a dry place. When the scales of the pod turn brown, separate the seeds, dry them in the sun in the morning only, and when dry store them in a dry room. Sow them in March, in shallow pans, and transplant the seedlings singly into small pots. As soon as the frosts are passed, plant them out a foot apart every way, and allow them to flower. All bad-shaped or dull-coloured throw away; there is no hope of their improving by culture. Such as have good-formed petals and bright colours, though not perfectly double, may be kept another year for a further trial; and such as are excellent should be propagated from the young tops, to preserve the kinds, as the old root might perish.

Soil.—The dahlia requires a rich, deep, friable soil; and, as the branches are heavy and brittle, a sheltered situation should be chosen, neither too low nor too high. The ground should be trenched, if it will allow it, eighteen inches or two feet deep, a good coating of well-decomposed dung spread on the surface after the trenching is completed, and

immediately dug in one spit deep. Lay the soil so mixed up in slight ridges, to be levelled down just before planting.

Summer Culture.—Prepare the plants for planting out by constant and full exposure when the weather is mild. The season for planting is as soon as there is no fear of any more frost. To grow them fine, and to obtain high colours, they should have plenty of room between each plant—five feet apart every way for the dwarf-growing kinds, and six feet for the tall ones, will not be too much. It is a good method to have the places for each marked out, by driving in the stakes in the exact places first, and then there is no danger of the stakes injuring the roots. As late frosts might possibly occur, it is safer to cover the plants at night with clean empty garden-pots of a sufficient size to cover them without touching the leaves, until all fear of frost has subsided. When the plants have obtained a considerable growth, cover the surface round each plant with some half-rotted, littersy stable-dung; this will preserve them from drought, and afford nutriment when the plants are watered.

Tying is a very important operation. As soon as the plants are high enough, they should be tied to the stakes with some rather broad shreds of soft bass matting; and the side-shoots must also be secured by longer pieces of matting, to prevent the winds and heavy rains from breaking them off. It may sometimes be necessary to place three or four additional stakes at a certain distance from the central one, to tie the side-branches to. The best kind of stakes are the thinnings of larch plantations. They should be stout, and six or seven feet long, at least. As the plants grow, if the weather is hot and dry, abundance of water should be supplied.

Protecting the Flowers.—This will be necessary if intended for exhibition. Caps of oiled canvass stretched upon a wire frame are very good for the purpose; even a common garden-pot turned upside down is no bad shelter. They may easily be suspended over each flower by being fastened to a stake, and the flower gently brought down and tied to the stake under them. The best shade, however, is a square box with a glass front, and a slit at the bottom to allow the stem of the flower to slide into it, and thus bring the flower within the box. The

flower then has the advantage of light and air, and is still protected from the sun, wind, and rain.

Winter Culture.—As soon as the autumn frosts have destroyed the tops of the plants, cut down the stems, and take up the roots immediately. If the roots come up clean out of the ground, they will only require gently drying, and may be stored at once in some place where they will be safe from frost. If the soil clings much to the tubers, these should be washed and dried, and then stowed away. The place should not only be free from frost, but from damp also, yet not so dry as to cause them to shrivel up too much. It is a good plan to have two or three of each kind struck late and kept in pots through the winter; but the soil must be perfectly dry before they are put to rest, and no wet or frost allowed to reach them. A good place for them is to lay the pots on one side under the stage of a greenhouse. In these winter quarters they must be frequently examined, and all decaying roots or stems removed.

Insects.—In the early stages of growth, the great pest to the dahlia is the slug. Watering with clear lime-water is the best article to destroy them, or a dusting of quick-lime in dewy mornings will be useful; a circle of lime round each plant will be a good preventive, and also a carefully gathering up, very early in the morning, of these vermin will greatly reduce their numbers. When the plants are in flower, the *earwig* is almost sure to attack them, and frequently in one night will disfigure the finest and most perfect bloom, and render it unfit for exhibition. Traps must be set to catch them. Small garden-pots with a little hay or moss put in them, and then turned upside down upon the stakes, are a good trap for them. They should be examined every morning, and the insects in them destroyed. Dried bean stalks are also a good trap: place them among the branches, and the insects will creep into them as a hiding place. Also, as they feed chiefly in the night, take a lantern at that time, and examine every flower.

Preparing for Exhibition.—Cut the flowers the night before, and if they are to be conveyed a considerable distance, have a box or boxes made with watertight tin tubes securely fixed in the bottom, to hold water; pass the stem of each

flower through a plug of wood with a hole in the centre, just wide enough to allow the stem to pass through it, and just thick enough to fit like a cork into the tin tube. Make the flower quite firm in the wooden plug, and let the lid of the box be so elevated as not to touch the flower.

DA'IS. (From *daio*, to heat; referring to the causticity of the bark. Nat. ord., *Daphnads* [Thymelacæe]. Linn., 10-*Decandria* 1-*Monogynia*. Allied to *Meze-reon*.)

Greenhouse evergreen. Seeds sown in slight hotbed, in March; cuttings of half-ripened shoots, or of the roots, in April, in sand, under a glass, and with a little heat; peat and loam. Summer temp., 55° to 75°; winter, 40° to 45°.

D. cotinifolia (cotinus-leaved). 10. White, green. June. Cape of Good Hope. 1776.

DAISY. (*Be'llis pere'nnis*.) There are many double varieties of this hardy perennial; some white, others crimson, and many variegated. A more curious variety is the Proliferous or Hen and Chicken Daisy. They all will flourish in any moist soil, and almost in any situation. They bloom from April to June. Propagated by divisions; the smallest fragment of root almost enables them to grow. To keep them double and fine, they require moving occasionally. Planted as an edging round the Ranunculus-bed their roots tempt the wireworm from those of the choicer flower.

DALBERGIA. (Named after *Dalberg*, a Swedish botanist. Nat. ord., *Leguminous Plants* [Fabacæe]. Linn., 17-*Dialdelphia* 4-*Decandria*.)

The wood of *D. Si'ssoo* is remarkable for its excellence. East Indian stove evergreen trees, almost all with white flowers. Cuttings of firm young shoots in March, in sand, under a glass, and in a little bottom-heat; fibry peat and turfy loam, with a portion of sand. Summer temp., 60° to 85°; winter, 50° to 55°.

D. Barcla'yi (Barclay's). 15. Blue. Mauritius. 1823.

— *frondo'sa* (fronded). 30. 1818.
— *margin'a'ta* (bordered). 20. 1823.
— *Ougei'ne'sis* (Ougein). 30. 1820.
— *panicu'la'ta* (panicled). 30. 1811.
— *rimo'sa* (chinky). 20. 1823.
— *rubigino'sa* (rusty). 10. 1811.
— *scu'ndens* (climbing). 20. 1812.
— *Si'ssoo* (Sissoo). 30. 1820.
— *tamarindifo'lia* (tamarind-leaved). 15. 1820.
— *Telfai'rii* (Telfair's). 15. Mauritius. 1823.
— *volu'bilis* (twining). 20. 1813.

DALECHAMPIA. (Named after *Dale-champ*, a French botanist. Nat. ord., *Euphorbiads* [Euphorbiacæe]. Linn.,

21-*Monæcia* 1-*Monandria*. Allied to *Poinsettia*.)

Stove evergreen climbers, with yellowish-green flowers. Cuttings a little dried at their base before insertion into sandy soil, under a hand-light, in April; peat and loam. Summer temp., 60° to 85°; winter, 50°.

D. Brazili'e'nsis (Brazilian). 6. July. Brazil. 1824.

— *scifo'lia* (fig-leaved). 6. July. Brazil. 1820.

— *scu'ndens* (climbing). 12. June. W. Ind. 1759.
DALIBA'RDA. (Named after *Dalibard*, a French botanist. Nat. ord., *Roseworts* [Rosacæe]. Linn., 12-*Icosandria* 2-*Di-pentagynia*. Allied to *Potentilla*.)

An alpine, or rock-plant. Division; light, sandy soil; a sheltered, dry place, or the protection of a cold pit in winter.

D. violæoi'des (violet-like). ♀. White. May. N. Amer. 1763.

DAMASO'NIUM. Plants of no interest to the gardener, belonging to a small group of fresh-water plants, singular for flowering under water, except at the time of fertilization, when the flowers rise above the water for a few hours. The group is called *Hydrocarads*; but these *Damasoniums* are now referred to the genus *Ottelia*, allied to *Stratiotes*.

DAME'S VIOLET. *He'speris matrona'lis*.

DA'MMARA. (The *Dammara* Pine of New Zealand. The *Kawrie* of the natives. Nat. ord., *Conifers* [Coniferæ]. Linn., 21-*Monæcia* 10-*Monadelphina*.)

The finest masts are now prepared from the *D. australis* for our navy; it also yields a brittle, resin-like copal. Cuttings of young, ripe, firm shoots, inserted in sand, in the spring, in a gentle bottom-heat, under a bell-glass; loam, with a little sand. Summer temp., 55° to 80°; winter, 35° to 45°.

D. austr'a'lis (southern. *Cowdie* Pine). 200. New Zealand. 1821.

— *orienta'lis* (eastern). 50. Amboyna. 1804.

DAMPIE'RA. (Named after the circumnavigator, *Capt. W. Dampier*. Nat. ord., *Goodeniads* [Goodeniacæe]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Scævola*.)

Greenhouse herbaceous perennials, with blue flowers, from New Holland. Division; and cuttings of young shoots in sand, under a glass; peat and loam. Summer temp., 55° to 75°; winter, 35° to 45°.

D. ala'ta (winged-leaved). May. 1842.

— *corona'ta* (crowned-flowered). May.

— *cune'da* (wedge-leaved). May.

— *fascicu'la'ta* (bundle-flowered). May. 1841.

— *lavendula'cea* (lavender-leaved). 1843.

— *linea'ris* (narrow-leaved). 1840.

— *ovalifo'lia* (oval-leaved). ♀. July. 1834.

— *stri'cta* (upright). 1. July. 1814.

— *te'ris* (round-leaved). June.

DAMPING OFF is a name applied by

gardeners to an ulceration of the stems of seedlings, and other tender plants. This ulceration arises from the soil and air in which they are vegetating being kept too moist or damp. Flower seedlings are especially liable to be thus affected; and, to prevent this, one third of the depth of the pot should be filled with drainage, and the soil employed, instead of being sifted, allowed to retain all moderately-sized stones. The seeds should be sown very thinly, pressed down, and a little white sand be sprinkled over the surface, because this is not easily disturbed by watering, and is not a medium that retains moisture to the neck of the seedlings, where dampness most affects them. A pot of sand should be kept hot, and whenever symptoms of the disease appear, a little whilst hot sprinkled on the soil.

DANÆA. (Named after *P. M. Dana*, who wrote on the Flora of Piedmont. Nat. ord., *Danaeae* [Danaeaceæ]. Linn., 24-Cryptogamia 1-Filices.)

This small order consists of Fern-like plants, and for all the purposes of cultivation may be considered as Ferns. Stove herbaceous perennial. Divisions; peat and loam. Summer temp., 60° to 90°; winter, 48° to 55°.

D. alata (winged). W. Ind. 1823.

DA'PHNE. (So called after the fabled nymph of that name. Nat. ord., *Daphnads* [Thymelaceæ]. Linn., 8-Octandria 1-Monogynia.)

Extreme causticity is the general property of the Daphnads—the Spurge Laurel and Mezereum particularly so. Seed for most of the species, especially of the *D. laureola*, or Spurge Laurel; used as a grafting stock for most of the rarer and tender kinds. As the seed is two years in vegetating, it is usual to keep it some time in sand, in a heap. *D. cneorum* and other dwarf kinds, especially if at all trailing, are generally propagated by layers in summer. A close pit for grafting the finer kinds, in March or April, is an advantage. Most of them like a good proportion of sandy peat; but the deciduous *Mezereum* prefers pure loam. The *odo'ra* and *odo'ra rubra* are nearly hardy in the climate of London; but farther north they require the cold pit or greenhouse.

HARDY DECIDUOUS.

- D. Fortu'ni* (Fortune's). 3. Lilac. February. China. 1844.
 — *Mezereum* (Mezereum). 4. Pink. March. England.
 — *album* (white-flowered). 4. March.
 — *autumna'le* (autumnal). 4. Red. August. Europe.
 — *rubrum* (red-flowered). 4. Pink. March. England.

HARDY EVERGREENS.

- D. alpi'na* (alpine). 2. White. June. Italy. 1759.
 — *Alti'ca* (Altaic). 3. White. April. Siberia. 1796.

- D. austr'alis* (southern). 3. Pink. April. Naples.
 — *cneorum* (gorland-flower). 1. Pink. July. Australia. 1752.
 — *foliis variegatis* (variegated-leaved). 1. Pink. April.
 — *grandiflorum* (large-flowered). 1. Pink. April.
 — *colli'na* (hill). 3. Purple. March. Italy. 1752.
 — *Gnidium* (Gnidium). 2. White. July. Spain. 1597.
 — *laureola* (Spurge-laurel). 6. Green. February. Britain.
 — *Neapolita'na* (Neapolitan). 2. Purple. March. Naples. 1823.
 — *oleoides* (olive-like). 2. White. Crete. 1815.
 — *Pontica* (Pontic). 4. Green, yellow. April. Pontus. 1759.
 — *foliis variegatis* (variegated-leaved). 1. Pink. August. Pontus.
 — *pubescens* (downy). 3. Yellow. April. Austria. 1810.
 — *sericea* (silky). 2. White. April. Crete. 1820.
 — *striata* (streaked). 2. Purple. May. Switzerland. 1819.
 — *Tart'on-ra'ra* (Tarton-raira). 3. White. June. France. 1640.
 — *tomentosa* (shaggy). 2. White. June. Asia. 1800. Half-hardy.
 — *thymela'ca* (Wild Olive). 3. Yellow. March. Spain. 1815.
 — *viridiflora* (green-flowered). Green. Nepal. 1829.

GREENHOUSE EVERGREENS, &C.

- D. Aucklandi* (Lady Auckland's). 2. Himalayas. 1841. Stove.
 — *Chinensis* (Chinese). 4. Yellow. May. China. 1825.
 — *Indica* (Indian). 4. White. June. China. 1800.
 — *rubra* (red). Purplish-pink. China.
 — *Japonica* (Japan). 2. Pink. March. Japan. 1840.
 — *odo'ra* (sweet-scented). 3. Pink, white. July. China. 1771.
 — *rubra* (red). 4. Pink. April. China. 1831.
 — *variegata* (variegated). 4. White. October. Japan. 1800.
 — *papyracea* (paper). 4. White. May. Nepal. 1824.
 — *tinifolia* (tinus-leaved). 6. Jamaica. 1773. Stove.

DARE'A. (Named after *Dar*, a botanist. Nat. ord., *Ferns* [Polypodiaceæ]. Linn., 24-Cryptogamia 1-Filices. Allied to *Asplenium*.)

Stove Ferns, requiring the same treatment as *Cænopteris*.

- D. alata* (winged). Brown. July. W. Ind.
 — *bulbiferum* (bulb-bearing). 1. Brown. June. New Zealand. 1820.
 — *cicutarium* (cicuta-like). 1. Brown. June. W. Ind. 1820.
 — *diversifolia* (various-leaved). 2. Brown. March. N. Zealand. 1831.
 — *myriophylla* (thousand-leaved). Brown. July. S. Amer.
 — *rhizophorum* (root-bearing). 1. Brown. July. Jamaica. 1793.
 — *rhizophyllum* (rooting-leaved). 3. Brown. June. N. Amer. 1680.
 — *rutafolia* (rue-leaved). Brown. July. W. Ind.

D. scandens (climbing). Brown. July. Isle of Leyte.

— *viviparum* (viviparous). 1. Brown. June. Mauritius. 1820.

DARWINIA. (Named after Dr. Darwin, author of *The Botanic Garden*. Nat. ord., *Fringe-myrtles* [Chamelauciaceæ]. Linn., 10-Decandria 1-Monogynia. Allied to Genetyllis.)

Greenhouse evergreens, from New Holland. Cuttings of young shoots in sand, under a bell-glass; peat and loam, both fibry, and with sand. Summer temp., 55° to 75°; winter, 35° to 45°.

C. fasciculata (fascicled). 29. Red. June. 1820.

— *taxifolia* (yew-leaved). 29. White. June. 1824.

DASYSTEMON. (From *dasy*, thick, and *stemon*, a stamen. Nat. ord., *House-leeks* [Crassulaceæ]. Linn., 5-Pentandria 5-Pentagynia. Allied to Crassula.)

Hardy annual. Seeds in April; sandy loam.

D. calycinum (leafy-calyxed). White. June. Australia. 1823.

DATE PALM. *Phœnix*.

DATE PLUM. *Diospyrus*.

DATURA. Thorn Apple. (From its Arabic name, *Tatorali*. Nat. ord., *Night-shades* [Solanaceæ]. Linn., Pentandria 1-Monogynia. Allied to Solandra.)

Violent narcotic principles pervade this order, the seeds being the most powerful. Annuals, by seeds in hotbed, in March, and either potted and bloomed in the greenhouse, or transferred to a rich, sheltered border. Evergreen shrubs, by cuttings any time in spring or summer, in light soil, in a little heat, with a hand-light over them; rich, fibry loam; do well in a sheltered border in summer, and may either be protected there, or removed to a shed or house where the temperature will not fall below 35° to 40° in winter.

HARDY ANNUALS.

D. alba (white-flowered). White. July. E. Ind. — *ceratocaulon* (horn-stalked). 2. White. August. S. Amer. 1805.

— *fastuosum* (proud). 3. Purple. August. Egypt. 1629.

— *ferox* (fiere). 3. White. August. China. 1731.

— *fruticosum* (shrubby). White. June. S. Amer. 1825.

— *Guayaquilensis* (Guayaquil). 2. White. August. Guayaquil. 1826.

— *lævis* (smooth-fruited). 2. White. July. Africa. 1710.

— *Metel* (Metel). 2. White. July. Asia. 1596.

— *muricata* (mureicated). 2. White. May. 1820.

— *quercifolia* (oak-leaved). Lilac. July. Mexico. 1824.

— *Stramonium* (Stramonium). 3. White. August. England.

— *flava* (yellow). Sulphur. August.

— *Tatula* (Tatula). 3. Blue. August. N. Amer. 1629.

GREENHOUSE EVERGREENS.

D. bicolor (two-coloured-corolla). 20. Dark red. August. Peru. 1833.

— *candida* (white-stalked). 10. White. August. Peru. 1813.

D. cornigera (horn-bearing). 10. White. July. Brazil. 1844.

— *floriplexis* (double-flowered). 10. White. July. 1846.

— *floribunda* (many-flowered). Orange. June. S. Amer. 1838.

— *Gardneri* (Gardner's). White. S. Amer. 1733.

— *lutea* (yellow-flowered). 20. Yellow. September.

— *suaevolens* (sweet-scented). 15. White. August. Peru. 1733.

— *Waymanii* (Wayman's). 2. White, purple. May. S. Amer. 1827.

DAUBENTONIA. (Named after M. Daubenton, a naturalist. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 17-Diadelphia 4-Decandria. Allied to Sesbania.)

Stove evergreen shrubs. Cuttings of ripened young shoots in sand, under a glass, and in heat; loam and peat, open and fibry, with a little sand. Summer temp., 60° to 85°; winter, 50° to 55°.

D. longifolia (long-leaved). 3. Yellow. July. New Spain. 1820.

— *punicata* (red). 3. Vermilion. July. New Spain. 1820.

— *Tripetioides* (Mr. Tripet's). Scarlet, orange. September. Buenos Ayres. 1840.

DAUBENYA. (In honour of Dr. Daubeny, professor of botany in the University of Oxford. Nat. ord., *Lilyworts* [Liliaceæ]. Linn., 6-Hexandria 1-Monogynia. Allied to Massonia.)

Pretty yellow-flowering-bulbs, from the Cape of Good Hope, which will succeed in a warm border in front of a greenhouse, if protected from frost in winter; and also in pots, in rich, sandy loam, either in a greenhouse or frame, and to be kept quite dry while at rest; offsets.

D. aurea (golden-flowered). 4. June. 1832.

— *fulva* (tawny). 4. 1836.

DAUCUS. Carrot. (From *daucus*, a carrot. Nat. ord., *Umbellifers* [Apiaceæ]. Linn., 5-Pentandria 2-Digynia.)

The cultivated species is a white-flowered hardy biennial; but there are others, biennials and annuals, mere weeds. Seeds in March or April; deep, light, well-pulverized soil. See CARROT.

D. carota (common carrot). 3. June. Britain.

— *aurea* (long-orange). 3. June.

— *hortensis* (yellow-garden). 3. May.

— *praecox* (early-horn). 3. June.

DAVALLIA. Hare's-foot Fern. (Named after E. Daval, a Swiss botanist. Nat. ord., *Ferns* [Polypodiaceæ]. Linn., 24-Cryptogamia 1-Filices.)

The rhizomes or creeping stems of this Fern, clothed with a light-brown down, when without leaves, look much like a hare's foot. Greenhouse Ferns. Divisions and severing the roots; and by spores; peat and loam. Summer temp., 60° to 90°; winter, 45° to 55°.

D. alata (winged). June. E. Ind.

— *Canariensis* (Canary). 14. June. Canaries. 1699.

— *Concavadoensis* (Concavado). 1. Brazil. 1823.

— *dubia* (doubtful). 1. June N. Holland. 1826.

- D. elegans* (elegant). 1. June. N. Holland. 1824.
 — *flavescida* (feeble). 1. June. N. Holland. 1820.
 — *fumarioides* (fumaria-like). August. W. Ind. 1823.
 — *gibberosa* (swollen-rooted). 2. June. N. Holland. 1825.
 — *pentaphylla* (five-leaved). April. Singapore.
 — *pyxidifolia* (box-like). 2. June. N. S. Wales. 1808.
 — *retusa* (abrupt-ended). June. Isle of Luzon.
 — *solida* (solid). July. Isle of Luzon. 1844.
 — *tenuifolia* (slender-leaved). July. Isle of Luzon.

DAVIE'SIA. (Named after the Rev. H. Davies, a Welsh botanist. Nat. ord., Leguminous Plants [Fabaceæ]. Linn., 10-Decandria 1-Monogynia. Allied to Viminaria.)

Greenhouse evergreens, from New Holland. Cuttings of young shoots, rather firm, (stumpy side-shoots are best), in sand, under a bell-glass; seeds sown in a slight hotbed in March; peat and loam. Summer temp., 55° to 80°; winter, 36° to 45°.

- D. acicularis* (needle-leaved). 2. Yellow. June. 1804.
 — *alata* (winged). 3. Yellow. June. 1818.
 — *angulata* (sharp-cornered). Yellow. April.
 — *cordata* (heart-leaved). 3. Yellow. June. 1824.
 — *corymbosa* (corymbose). 2. White, red. July. 1804.
 — *genistoides* (genista-like). Yellow. May. 1825.
 — *incrassata* (thick-leaved). 2½. Yellow. June. 1820.
 — *juniperifolia* (juniper-like). 2. Yellow. May. 1825.
 — *juncea* (rush-like). 2½. Yellow. July. 1823.
 — *latifolia* (broad-leaved). 3. Yellow. June. 1805.
 — *leptophylla* (slender-leaved). 2. Yellow. July. 1824.
 — *linearis* (narrow-leaved). 1½. Yellow. July. 1827.
 — *longifolia* (long-leaved). Yellow. May. 1840.
 — *mimosoides* (mimosa-like). 2. Yellow. May. 1809.
 — *pedunculata* (long-flowered-stalked). Yellow. May.
 — *physoides* (bladdery). 2. Yellow. May.
 — *polyphylla* (many-leaved). Yellow. May. 1842.
 — *pungens* (pungent). Yellow. May. 1825.
 — *quadrilobata* (four-sided-leaved). Yellow. May. 1840.
 — *racemulosa* (slightly-racemed). 2½. Yellow. July. 1823.
 — *ramulosa* (branching). Yellow. May. 1842.
 — *squarrosa* (spreading). 2½. Yellow. June. 1824.
 — *ulicina* (furze-leaved). 3. Yellow. June. 1792.
 — *umbellulata* (small-umbelled). 2½. Yellow. May. 1816.
 — *virgata* (twiggy). 2. Tawny. July. 1827.

DAY LILY. *Hemerocallis*.

DE'CODON. See NESSE'IA.

DECUMARIA. (From *decuma*, a tenth; referring to the ten valvate divisions of the calyx, and the ten cells of the capsule, or seed-pod. Nat. ord., Syringas [Philadelphaceæ]. Linn., 11-Decandria 1-Monogynia. Allied to Philadelphus.)

Hardy deciduous twiners, with small white flowers, requiring supports, or to be trained against a south wall in a dry, warm border of light, rich soil. Cuttings under a hand-light, in a shady place, and in sandy soil, in summer.

- D. barbaria* (barbarous). 4. July. Carolina. 1795.
 — *prostrata* (prostrate). 5. July. N. Amer. 1820.
 — *sarmentosa* (twiggy). 30. July. Carolina. 1758.

DELI'MA. (From *delimo*, to shave or polish; referring to the hard asperities which cover the leaves, and render them fit for polishing. Nat. ord., Dilleniads [Dilleniaceæ]. Linn., 13-Polyandria 1-Monogynia. Allied to Tetracera.)

Handsome stove evergreen twiners, with fine large leaves and yellow flowers, having much the aspect of small Magnolia flowers. Cuttings of fine young shoots in April, in sand, under a bell-glass, and in bottom-heat; peat and loam, both turfy and fibry, with a little silver sand, pieces of charcoal, and good drainage. Summer temp., 60° to 85°; winter, 50° to 55°.

- D. nitida* (shining-leaved). 10. Trinidad. 1850.
 — *sarmentosa* (twiggy). 10. Ceylon. 1820.

DELPHINIUM. Larkspur. (From *delphin*, a dolphin; supposed resemblance of the spur to a dolphin's head. Nat. ord., Crowfoots [Ranunculaceæ]. Linn., 13-Polyandria 3-Trigynia.)

Annuals and biennials, by seeds in common soil, in the open border, in March and April; perennials, by division of the roots in spring and summer, and by seeds in March or April.

HARDY ANNUALS AND BIENNIALS.

- D. Aconiti* (Aconite-like). 1. Purple. June. Levant. 1801.
 — *Aja-cis* (Ajax). 1½. Pink. June. Switzerland. 1573.
 — *fiore-pleno* (double-flowered). 1. Variegated. June. Europe. 1573.
 — *ambiguum* (doubtful). Blue. June. Barbary. 1759.
 — *cordioides* (heart-petaled). 1. Blue. June. Pyrenees. 1818.
 — *consolida* (uniting. Branched). 2. Blue. April. England.
 — *fiore-pleno* (double-flowered). 1. Variegated. June. England.
 — *divaricatum* (straggling). Purple. July. Persia. 1836.
 — *Oliverianum* (Oliver's). 1½. Blue. June. South Europe. 1826.
 — *pergrinum* (diffuse). 1. Blue. July. Italy. 1629.
 — *picatum* (painted). 1½. Light blue. June. South Europe. 1816. Biennial.
 — *pubescens* (downy). 2. Blue. August. Mediterranean. 1816.
 — *Requienii* (Requien's). 4. Blue. July. Majorca. 1824. Biennial.
 — *Staphisagria* (Stavesacre). 2. Light blue. July. South Europe. 1896. Biennial.
 — *tenuissimum* (slenderest-branched). 1. Purple. August. Greece. 1835.
 — *virgatum* (twiggy). 1½. Blue. June. Syria. 1823.

HARDY HERBACEOUS PERENNIALS.

- 2). albiflorum* (white-flowered). 4. White. July. America. 1823.
 — *alpinum* (alpine. Bee). 5. Blue. July. Hungary. 1816.
 — *altaicum* (Altaian). 4. Blue. July. Altaia. 1829.
 — *amœnum* (pleasing). 2. Pale blue. July. Siberia. 1818.
 — *azuræum* (azure). 16. Light blue. July. Carolina. 1805.
 — *cheilanthum* (lip-flowered). 2. Dark blue. May. Siberia. 1819.
 — *chinense* (Chinese). 2. Blue. July. China. 1819.
 — *cruscaule* (thick-stemmed). Blue. June. Siberia. 1822.
 — *cuneatum* (wedge-leaved). 4. Blue. June. Siberia. 1816.
 — *dasycaarpum* (thick-fruited). 4. Blue. July. Caucasus. 1819.
 — *decorum* (comely). 1½. Blue. June. Russia. 1838.
 — *dictyocarpum* (netted-fruited). 4. Blue. July. Siberia. 1817.
 — *discolor* (two-coloured). 6. Blue, white. August. Siberia. 1834.
 — *elatum* (tall. Common Bee). 6. Blue. July. Siberia. 1897.
 — *elegantis* (elegant). 1½. Blue. July. N. Amer.
 — *fiore-pleno* (common - double - flowered). 1½. Blue. July. N. Amer. 1741.
 — *exaltatum* (lofty). 3. Blue. July. N. Amer. 1758.
 — *flæum* (clef). 4. Blue. June. Hungary. 1816.
 — *flexuosum* (zigzag). 2. Blue. May. Caucasus. 1820.
 — *gracile* (graceful). Red. July. Spain. 1826.
 — *grandiflorum* (large-flowered). 2. Dark blue. July. Siberia. 1816.
 — *album* (white-flowered). 2. White. July.
 — *album-pleno* (double-white). 2. White. June.
 — *fiore-pleno* (double-blue-flowered). 2. Dark blue. June.
 — *pallidum* (pale blue). 2. Blue. June.
 — *rubrum* (red-flowered). 3. Red, pink. August.
 — *hybridum* (hybrid). 3. Blue. July. Siberia. 1794.
 — *intermedium* (intermediate). Blue. August. Silesia. 1710.
 — *caerulea* (downy-leaved, sky-blue). 7. Light blue. July. 1836.
 — *laeum* (loose-spiked). 6. Blue. May.
 — *leptostachyum* (slender-spiked). 6. Blue. May. Pyrenees.
 — *pallidum* (pale blue). 2. Blue. July.
 — *pilosissimum* (hairiest). 6. Blue. July. Siberia.
 — *ranunculifolium* (ranunculus-leaved). 6. Blue. July. Pyrenees.
 — *sapphirinum* (sapphire-blue-flowered). 7. Blue.
 — *lariflorum* (loose-flowered). 4. Blue. July. Siberia.
 — *Menziesii* (Menzies'). 2. Blue. July. N. Amer. 1826. Tuberos-rooted.
 — *mesoleucum* (white-middled). 3. Blue. July. 1822.
 — *montanum* (mountain). 4. Blue. July. Switzerland. 1819.
 — *bracteosum* (bracteose). 8. Blue, June. South Europe. 1816.
- D. moschatum* (musk-scented). 6. Dark blue. August. Switzerland. 1834.
 — *ochroleucum* (yellowish-white). 2. White. Iberia. 1823.
 — *pallidum* (pale). Pale blue. June. Siberia. 1822.
 — *palmatifidum* (hand-like-cleft). 3. Blue. July. Siberia. 1824.
 — *glabellum* (smoothish). 3. Blue. June. Siberia. 1817.
 — *pentagynum* (five-styled). 2. Blue. July. South Europe. 1819.
 — *pseudoperegrinum* (rather-diffuse). 3. Red. June. Siberia. 1823.
 — *punicum* (scarlet-flowered). 1. Purple. July. Siberia. 1785.
 — *revolutum* (rolled-back). 6. Pale blue. April.
 — *Sinese flore-pleno* (Chinese double-flowered). Deep blue. June. China.
 — *speciosum* (showy). 4. Blue. July. Caucasus. 1816.
 — *spurius* (spurious). 4. Blue. August. Siberia. 1810.
 — *tricornis* (three-horned). ½. Blue. July. N. Amer. 1806.
 — *triste* (sad). 2. Blue. July. Dahuria. 1819.
 — *Ucranicum* (Ukraine). Blue. June. Siberia. 1818.
 — *urceolatum* (pitcher-like). 2. Blue. June. 1801.
 — *velutinum* (velvety). 4. Blue. July. Italy. 1819.
 — *villosum* (long-haired). 4. Blue. July. Caucasus. 1818.
 — *vimineum* (wand-like). 4. Blue. August. N. Amer. 1835.

DENDROBIUM. (From *dendron*, a tree, and *bios*, life; referring to the way these air-plants fasten on trees for support. Nat. ord., *Orchids* [*Orchidaceæ*]. Linn., 20-Gynandria 1-Monandria.)

Stove orchids. Dividing the plant when in a dormant state; turfy peat, a few broken potsherds, and fastening the plant above the surface of the pot; cutting pieces of peeled oak as long as the diameter of the pot inside at the rim; fixing the plant to this wood; and, after placing it in the pot, banking up around it with the suitable compost—prevents all danger from damp, owing to the plant sinking. Temp., 60° to 90° when growing, with moisture in the air; and when at rest, 55° to 60°, and drier.

- D. æmulum* (rival). ½. White, brown. N. Holland. 1823.
 — *acerosum* (pointed - leaved). Yellow, pink. Singapore. 1840.
 — *aculeare* (needle-leaved). Yellow, pink. Singapore. 1840.
 — *acuminatissimum* (most pointed). Greenish. Manilla. 1840.
 — *aduncum* (hooked). 2. Pink. Manilla. 1842.
 — *aggregatum* (clustered). 1. Yellow. April. India.
 — *maius* (larger). White. April. India. 1835.
 — *alpestre* (rock). White. Himalayas. 1840.
 — *amœnum* (lovely). White, yellow. June. Nepal. 1843.
 — *ampleum* (ample). Straw-coloured. Kooseea. 1837.
 — *anostum* (scentless). 1½. Purple. June. Philippines. 1840.
 — *aqueum* (watery). 1. Greenish. November. Bombay. 1842.
 — *auræum* (golden-flowered). 1. Yellow. Ceylon.
 — *pallidum* (pale-golden-flowered). 1. Pale yellow. March. Ceylon. 1836.

- D. auriferum* (gold-bearing). Yellow. China. 1843.
- *barbatum* (bearded). Buff. Bombay. 1838.
- *bicaneratum* (two-chambered). Yellow, purple. August. Khooseea. 1837.
- *biflorum* (two-flowered). White. Society Islands. 1844.
- *breviflorum* (short-flowered). Green, brown. June. Indies.
- *cæruleus* (bluish). 2. Sky-blue. April. Khooseea. 1837.
- *calceolaria* (calceolaria). 2. Orange, pink. June. E. Ind. 1820.
- *calceolus* (slipper-like). Yellow. India. 1838.
- *Cambridgeanum* (Duke of Cambridge's). 1. Yellow. Khooseea. 1837.
- *candidum* (white-flowered). White. April. Khooseea. 1837.
- *cassythoides* (cassutha-like). Yellow. September. Australia. 1839.
- *chlorops* (green-eyed). Buff. Bombay. 1842.
- *chrysanthum* (golden-flowered). 1. Yellow. February. Nepal. 1828.
- *chrysotum* (golden-arched). 1. Yellow. March. Indies. 1845.
- *compressum* (flat-stemmed). ½. Yellow. Ceylon. 1842.
- *crumena* (pouch-stemmed). 1. White. April. Sumatra. 1823.
- *violandrum* (violet-scented). White. April. Java. 1838.
- *cretaceum* (chalked). 1. Dark, white-coloured veins. Java. 1846.
- *criniferum* (long-haired). Yellowish. Ceylon. 1843.
- *crispatum* (curled). White. E. Ind. 1838.
- *cucullatum* (hooded). Straw. India. 1835.
- *cucumerinum* (cucumber-like). ½. White, pink. N. Holland. 1841.
- *Cunninghamii* (Cunningham's). White. New Zealand. 1843.
- *cupreum* (copper-coloured). 2½. Red, buff. June. E. Ind. 1825.
- *cuspidatum* (spine-pointed). White. Savoy. 1844.
- *cymbidoides* (cymbidium-like). Yellow. Java. 1844.
- *Dalhousianum* (Lady Dalhousie's). 3. Purple, rose. Brazil. 1837.
- *Devonianum* (Duke of Devonshire's). 1. White, yellow, pink. May. E. Ind. 1837.
- *densiflorum* (thickly-flowered). 1½. Orange. June. Nepal. 1829.
- *pauidum* (pale). Pale yellow. India. 1837.
- *discolor* (two-coloured). 4. Yellow, brown. October. Java. 1838.
- *Egertoniae* (Lady Egerton's). Pink, yellow. Saharanpoor. 1844.
- *elongatum* (lengthened). 1½. Yellow, red. N. Holland. 1835.
- *Farmerii* (Mr. Farmer's). 1½. Pale straw-yellow. March. E. Ind. 1847.
- *fimbriatum* (fringed). 2. Yellow. May. Nepal. 1823.
- *oculatum* (eyed). Orange, brown. Nepal.
- *flavescens* (yellowish). Yellow. Java. 1844.
- *formosum* (beautiful). White. May. Khooseea. 1837.
- *Gibsonii* (Mr. Gibson's). Orange. June. Khooseea. 1837.
- *glumaceum* (chaffy). Green. Philippines.
- *Griffithianum* (Griffith's). Yellow. March. E. Ind. 1838.
- *Hasseltii* (Hasselt's). Purple. Java. 1844.
- *heterocarpum* (various-seeded). Pale yellow. Khooseea. 1837.
- D. Heyneanum* (Heyne's). White, green. March. Bombay. 1838.
- *hymenophyllum* (membrane-leaved). Greenish. May. Java. 1844.
- *insigne* (remarkable). Yellowish-green. Khooseea. 1837.
- *Jenkinsonii* (Capt. Jenkin's). 1. Yellow. May. Gualpara. 1838.
- *juceum* (rush-leaved). Green. Singapore. 1841.
- *Kingianum* (Capt. King's). ½. Pink spot. February. N. Holland. 1843.
- *Kuhl's* (Kuhl's). 2. Pale purple. Java. 1844.
- *latifolium* (broad-leaved). Green. Manila.
- *linguafolium* (tongue-leaved). ½. Purple. N. S. Wales. 1810.
- *longicollis* (long-necked). Straw, purple. Singapore. 1840.
- *longicorru* (long-spurred). 1. White. May. Nepal. 1828.
- *Macrae's* (Macrae's). Pink. India. 1839.
- *macranthum* (large-flowered). 2. Lilac. Manila. 1842.
- *macrochilum* (large-lipped). Rose. Manila. 1838.
- *macrophyllum* (large-leaved). Purple. July. Philippines. 1838.
- *mesochloium* (light green). White. June. India. 1846.
- *minutum* (small). White. March. N. Holland. 1826.
- *Mirbelianum* (Mirbel's). Lilac. Guinea.
- *misserum* (poor). White. March. Philippines. 1837.
- *moniliforme* (bracelet-formed). ¼. Blue. April. Japan. 1824.
- *moschatum* (musk-scented). Rose, buff. May. E. Ind. 1828.
- *mutabile* (changeable). Rose. April. Java. 1844.
- *nobile* (noble). 2. Green, yellow, pink. China.
- *Wallichii* (Wallich's noble). Purple, cream, white. March. E. Ind. 1840.
- *nudum* (naked). Pale purple. June. Java. 1844.
- *ochreatum* (yellowish). Yellow, purple. June. Khooseea. 1836.
- *oculatum* (dark-eyed). 2. Orange, blood-red-spotted. September. Nepal.
- *Paxtoni* (Paxton's). Orange, brown. April. Khooseea. 1837.
- *Pierardi* (Pierard's). 2. Whitish. April. E. Ind. 1815.
- *latifolium* (broad-leaved). Purple, rose, yellow. June. Singapore. 1830.
- *lutescens* (yellowish). Yellowish. May. India. 1835.
- *majus* (larger). Whitish. April. India. 1830.
- *pulchellum* (fair). 1. Yellow. April. E. Ind.
- *purpureum* (purple). Purple. March. Ragabosa. 1834.
- *revolutum* (rolled-back). Straw. April. Singapore. 1842.
- *rhombum* (diamond-lipped). 1. Pale yellow. August. Manila. 1834.
- *Ruckeri* (Rucker's). 1½. Yellow. February. Philippines. 1843.
- *rugosum* (rough). 1. Pale yellow. April. Java. 1844.
- *sanguinolentum* (blood-stained). ½. Buff, violet. March. Ceylon. 1842.
- *schæni* (fluted). White. June. N. Holland. 1845.
- *secundum* (side-flowering). Rose, purple. July. Malacca. 1838.

- D. secundum pallidum* (pale). Pale purple. July. Sumatra. 1840.
- *speciosum* (showy). 1. Yellow, white. January. N. Holland. 1824.
- *sulcatum* (furrowed). 1. Orange. April. Khoosea. 1837.
- *taurinum* (bull-headed). 5. Yellow, purple. October. Philippines. 1837.
- *teretifolium* (round-leaved). 1. Purple. July. N. Holland. 1823.
- *tetrago-num* (four-angled). 2. Yellow, green. May. Moreton Bay. 1838.
- *transparens* (transparent). Rose. Nepal.
- *triadenium* (three-gland-lipped). 2. White, lilac. E. Ind. 1844.
- *undulatum* (waved). Yellow, brown. March. Manilla. 1838.
- *vaginatum* (sheathed). Straw, purple. Singapore.
- *veratrifolium* (veratrum-leaved). Lilac. October. Guinea.
- *Veitchianum* (Mr. Veitch's). Yellow, white, cream. Java. 1846.

DENTARIA. Toothwort. (From *dens*, a tooth; referring to the fanged roots. Nat. ord., *Crucifers* [Brassicaceæ]. Linn., 15-*Tradynamia*. Allied to Cardamine.)

Hardy herbaceous perennials. Divisions of tuberous-like roots; seeds sown in April; rich, light soil, in moist, shady situations.

- D. bulbifera* (bulb-bearing). 1½. Purple. April. England.
- *dasyloba* (hairy-lobed). Russia. 1838.
- *digitata* (finger-leaved). 1½. Pale purple. Switzerland. 1856.
- *diphylla* (two-leaved). 3. White, purple. May. N. Amer.
- *enneaphylla* (nine-leaved). 1. Pale yellow. May. Austria. 1656.
- *glandulosa* (glanded). 1. Light purple. May. Hungary. 1815.
- *lacinia'ta* (jagged). 1. White. May. N. Amer. 1823.
- *ma'sima* (largest). 2. Pale purple. May. N. Amer. 1823.
- *pinna'ta* (leafleted). 1. Pale purple. May. Switzerland. 1683.
- *polyphy'lla* (many-leaved). 1. Purple. May. Hungary. 1818.
- *quinquefo'lia* (five-leaved). 1. Purple. May. Tauria. 1820.
- *tenuifo'lia* (fine-leaved). 1. Light purple. May. Siberia. 1825.
- *trifo'lia* (three-leaved). 1. White. May. Hungary. 1824.

DESFONTAINIA. (In honour of M. Desfontain, the French botanist. Nat. ord., *Nightshades* [Solanaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*.)

A lovely greenhouse evergreen shrub. Its culture is the same as for the more tender kinds of *Fuchsia*. The soil should be one third peat; it should be shaded from mid-day sun, and have plenty of moisture.

- D. spinosa* (spiny-holly-leaved). 3. Scarlet, yellow. August. Peru. 1853.

DESIGN. "Consult the genius of the place" before you determine upon your design, is sound advice; for in gardening, as in all the fine arts, nothing is pleasing

that is inappropriate. Mr. Whateley, our best authority on such subjects, truly says:—A plain simple field, unadorned but with the common rural appendages, is an agreeable opening; but if it is extremely small, neither a haystack, nor a cottage, nor a stile, nor a path, nor much less all of them together, will give it an air of reality. A harbour on an artificial lake is but a conceit; it raises no idea of refuge or security, for the lake does not suggest an idea of danger: it is detached from the large body of water, and yet is in itself but a poor, inconsiderable basin, vainly affecting to mimic the majesty of the sea.

When imitative characters in gardening are egregiously defective in any material circumstance, the truth of the others exposes and aggravates the failure. But the art of gardening aspires to more than imitation; it can create original characters, and give expressions to the several scenes superior to any they can receive from illusions. Certain properties, and certain dispositions of the objects of nature, are adapted to excite particular ideas and sensations; they require no discernment, examination, or discussion, but are obvious at a glance, and instantaneously distinguished by our feelings. Beauty alone is not so engaging as this species of character; the impressions it makes are more transient and less interesting; for it aims only at delighting the eye, but the other affects our sensibility. An assemblage of the most elegant forms in the happiest situations is to a degree indiscriminate, if they have not been selected and arranged with a design to produce certain expressions; an air of magnificence or of simplicity, of cheerfulness, tranquillity, or some other general character, ought to pervade the whole; and objects pleasing in themselves, if they contradict that character, should therefore be excluded. Those which are only indifferent must sometimes make room for such as are more significant—may occasionally be recommended by it. Barrenness itself may be an acceptable circumstance in a spot dedicated to solitude and melancholy.

DESMANTHUS. A genus of pea-flowered plants, allied to *Mimosa*, said to be good-looking in their native wilds; but we never saw a fine *Desmanthus* in cultivation.

DESMONCUS. (From *desmos*, a band, and *ogkos*, a hook; the ribs of the leaves ending in bands at the point, like tendrils. Nat. ord., *Palms* [Palmaceæ]. Linn., 21-Monœcia 6-Hexandria. Allied to *Cocos*.)

Stove Palms. Seeds in a hotbed; sandy loam. Summer temp., 60° to 84°; winter, 55° to 60°.

D. Americanus (American). 6. St. Vincent. 1824.

— *du'buis* (doubtful). 6. Trinidad. 1824.

— *orthocanthus* (straight-spined). 6. Brazil. 1822.

— *polyacanthus* (many-spined). 6. Brazil. 1822.

DEUTZIA. (Named after *J. Deutz*, a scholar of Amsterdam. Nat. ord., *Syringus* [Philadelphicææ]. Linn., 10-Decandria 3-Trigynia.)

We believe that *Deutzia* and *Philadelphus* are only different sections of the same genus, and that some of the species of each will yet cross with each other, to prove our position. *D. scabra*, grown as a dwarf standard, and pruned like the black currant, or cutting out the shoots after flowering, would form a great ornament for a border of select shrubs. It is also a good subject for spring flowering for the conservatory. Hardy deciduous shrubs. Cuttings under a hand-glass, or strong shoots may be planted in a sheltered place in autumn. Are fine ornaments to a wall in the early summer months; common soil.

D. corymbosa (corymb-flowering). 5. White. Himalayas.

— *gracilis* (slender). White. April. Japan.

— *sanguinea* (red-flowered). Red. April.

— *scabra* (rough-leaved). 6. May. Japan. 1833.

— *staminea* (broad-stamened). 3. White. April. Himalayas. 1841.

DEVONSHIRING. See **PARING AND BURNING.**

DEWBERRY. *Rubus cœsius*.

DIACA'LPE. (From *dis*, two, or double, and *calpis*, an urn; referring to the disposition of the spore-cases, or seed-vessels. Nat. ord., *Ferns* [Polypodiaceæ]. Linn., 24-Cryptogamia 1-Filices. Allied to *Woodsia*.)

Stove Fern. Division; peat and loam. Summer temp., 60° to 85°; winter, 50° to 55°.

D. aspidioides (aspidium-like). Yellow. July. Java.

DIANE'LLA. (A classical diminutive from *Diana*, the goddess of hunting; the first discovered species being found in a grove. Nat. ord., *Lilyworts* [Liliaceæ]. Linn., 6-Hexandria 1-Monogynia.)

Greenhouse or frame bulbs. They would answer in a mixed border of half-hardy bulbs in front of a stove or greenhouse, with *Anthericum*, *Albus*, *Blandfordias*, *Cummingias*, and the like. All from New Holland, and with blue flowers, except where otherwise specified. Seeds sown in a slight hotbed in spring, and division; loam and peat. Summer temp., 55° to 75°; winter, 40° to 48°.

D. cœrulea (sky-blue). 2. June. 1783.

— *congesta* (crowded). 2. June. 1820.

D. divaricata (straggling). 3. July. 1805.

— *ensifolius* (sword-leaved). 1½. White. August. E. Ind. 1731.

— *lævis* (smooth). 2. August. 1822.

— *longifolia* (long-leaved). 2½. August. 1822.

— *nemorosa* (grove). 2. August. E. Ind. 1731.

— *revoluta* (rolled-back). 2. August. 1823.

— *strumosa* (swollen). 1½. March. 1822.

DIANTHODIS. (*Dianthus*-like; so named from its flowers resembling the Pink. Nat. ord., *Phloxworts* [Polemoniaceæ]. Linn., 5-Pentandria 1-Monogynia.)

Some have ventured to change its name to *Fenzlia*. Hardy annual from California. Seeds in open border in April, or in a slight hotbed in March, to be afterwards transplanted in patches; sandy loam.

D. dianthiflora (pink-flowered). 4. Purple, yellow. June. 1833.

DIANTHUS. Pink. (From *dios*, divine, and *anthos*, a flower. Nat. ord., *Cloveworts* [Caryophyllaceæ]. Linn., 10-Decandria 2-Digynia.)

Seeds, divisions, and cuttings, under a hand-light, in light soil, any time about midsummer. The tender kinds should be kept in pots, and protected in a cold pit during the winter. See **CARNATION**, **PINK**, and **SWEET WILLIAM**.

HARDY ANNUALS AND BIENNIALS.

D. aggregatus (crowded). 1. Pink. June. 1817. Biennial.

— *armeria* (*armeria*). 1. Red. June. England.

— *armerioides* (*armeria*-like). 1. Red. June. New Jersey. 1822.

— *Chinensis* (China). 1. Red. July. China. 1713. Biennial.

— *marginalis* (bordered). 1. White. July. South Europe. 1820. Biennial.

— *prolifer* (proliferous). 3. Pink. July. England.

— *pubescens* (downy). 1. Red. July. Greece. 1820.

— *velutinus* (velvety). Red. May. Calabria. 1837.

HALF-HARDY PERENNIALS.

D. albens (whitish). 3. White. August. Cape of Good Hope. 1787.

— *arbo'reus* (tree). 1½. Pink. July. Greece. 1820. Evergreen.

— *arbuscula* (little tree). 1½. Red. July. China. 1824. Evergreen.

— *crenatus* (scalloped). 1. Flesh. August. Cape of Good Hope. 1817.

— *fruticosus* (shrubby. *Carnation*). 3. Pink. July. Greece. 1815. Evergreen.

— *Japonicus* (Japanese). 1. Pink. June. China. 1804.

— *juniperinus* (*juniper*-like). Red. July. Greece. 1825.

— *suffruticosus* (half-shrubby). 1½. Pink. August. Siberia. 1804. Evergreen.

HARDY PERENNIALS.

D. alpe'stris (rock). 3. Red. June. Europe. 1817.

— *alpinus* (alpine). 4. Red. June. Austria. 1759.

— *arenarius* (sand). 2. Purple. August. Europe.

- D. asper* (rough-stalked). 4. Pink. July. Switzerland. 1822.
- *atro-rubens* (dark red). 1. Crimson. August. Italy. 1802.
- *attenuatus* (tapering). 4. Red. July. Spain. 1822.
- *Balbisii* (Balbis's). 1. Red. August. Genoa. 1817.
- *barbatus* (bearded. *Sweet William*). 1½. Pink. July. Germany. 1573.
- *latifolius* (broad-leaved). 1½. Scarlet. July. 1826.
- *bicolor* (two-coloured). 1. Pink. July. Tauria. 1816.
- *biflorus* (two-flowered). Red. June. Greece.
- *brevis* (short). Red. June. Jurassa.
- *Buchtormensis* (Buchtormian). 1. Red. July. Russia. 1826.
- *cæsius* (grey). 4. Flesh. July. Britain.
- *campestris* (field). 1. White, red. August. Tauria. 1816.
- *capitatus* (headed). 1½. Purple. August. Caucasus. 1822.
- *Carolinianus* (Carolina). 1. Purple. June. N. Amer. 1811.
- *Carthusianorum* (Carthusian's). 1½. Red. July. Germany. 1573.
- *caryophylloides* (clove-like). 1. Red. June. 1817.
- *caryophyllus* (clove). 2. Flesh. June. England.
- *fo're-ple'no* (double. *Carnation*). 2. Crimson. August. England.
- *fruticosus* (shrubby. *Carnation*). 3. Crimson. July. England.
- *imbricatus* (imbricated. *Wheatear*). 1½. Flesh. August. England.
- *Caucasicus* (Caucasian). 1. Purple. July. Caucasus. 1803.
- *cephalotes* (headed). 1½. Pink. July. 1823.
- *ciliatus* (hair-fringed). 1½. Pink. July. Naples. 1829.
- *clavatus* (club-shaped). 1. Flesh. July.
- *collinus* (hill). 4. White. August. Hungary. 1800.
- *Cyri* (Cyri's). Red. June. Natolia. 1843.
- *deltoides* (triangle). 4. Flesh. June. Britain.
- *dentatus* (toothed). 1. Red. July. Siberia. 1826.
- *diffusus* (wide-spreading). 1½. Red. July. Cyprus. 1820.
- *diminutus* (small-flowered). 4. Pink. July. South Europe. 1771.
- *discolor* (two-coloured). 1. Pink. August. Caucasus. 1803.
- *diuturnus* (long-lasting). Red. June. Hungary. 1820.
- *divaricatus* (straggling). 1. Purple. August. Greece. 1822.
- *dubius* (doubtful). White, rose. May.
- *elegans* (elegant). Red. June. Levant. 1825.
- *erubescens* (blushing). Blush. July. Pyrenees. 1825.
- *ferrugineus* (rusty). Brown. July. Italy. 1756.
- *sulphureus* (sulphur-coloured). 1½. Sulphur. August. Italy. 1836.
- *Ambricatus* (fringed). 1½. Brown. July. Iberia. 1815.
- *Fischeri* (Fischer's). 1. Red. June. Russia. 1820.
- *albus* (white). 1½. White. August. Gardens. 1830.
- *fragrans* (fragrant). 1. White. August. Austria. 1804.
- D. fureatus* (forked). 1. Pale red. July. Piedmont. 1819.
- *Gallicus* (French). 4. Purple. August. South France.
- *giganteus* (gigantic). 3. Purple. August. Greece. 1824.
- *glaciatus* (icy). 4. Red. June. South Europe. 1820.
- *glaucophyllus* (milky-green-leaved). 1½. Red. July. 1827.
- *glauus* (milky-green). 4. White. June. Britain.
- *guttatus* (spotted). 1. Red. July. Caucasus. 1816.
- *Hendersonianus* (Henderson's). 1. Crimson. July.
- *hirtus* (hairy). 1. Red. July. France. 1821.
- *Hornemannii* (Hornemann's). 1. Red. August. Italy.
- *hortensis* (garden). 1. Red. July. Hungary. 1805.
- *hyssopifolius* (hyssop-leaved). 4. Pink. August. Europe. 1810.
- *Ibericus* (Iberian). 4. Purple. July. Iberia. 1817.
- *latifolius* (broad-leaved). 1½. Pink. June.
- *leptophyllus* (fine-petaled). 1½. White. June. Caucasus. 1814.
- *libanotis* (rosemary-like). 4. White. July. Lebanon. 1820.
- *Liboschitzianus* (Liboschitz's). 4. White. July. Tauria. 1817.
- *longicaulis* (long-stemmed). 1. White. August. Italy. 1820.
- *monadelphus* (monadelphous). 1. White. pink. August. Levant.
- *Monspellicanus* (Montpelier). 1. Red. July. Montpelier. 1764.
- *montanus* (mountain). 4. Red. July. Caucasus. 1803.
- *multipunctatus* (many-dotted). Spotted. June. Levant. 1825.
- *Mussini* (Mussini's). 4. White. June. Caucasus. 1823.
- *nanus* (dwarf). 4. Crimson. August. Switzerland. 1820.
- *nitidus* (shining). 1. Red. July. Carpathia. 1822.
- *ochroleucus* (yellowish-white). Yellow. June. Levant. 1821.
- *pallidiflorus* (pale-flowered). 1. Purple. July. Siberia. 1817.
- *petreus* (rock). White. July. Hungary. 1804.
- *fo'ribus-majo'ribus* (larger-flowered). 4. Pink. June. 1804.
- *Poiretianus* (Poiret's). 1. Purple. August. 1816.
- *fo're-ple'no* (double-flowered). 1. Purple. April. Greece. 1820.
- *polymorphus* (many-form). 1. Red. March. Crimea. 1822.
- *pomeridianus* (afternoon). 1. Yellow. July. Levant. 1804.
- *plumarius* (feathered). 4. White, purple. July. South Europe. 1629.
- *plumosus* (feathery-petaled). 1½. White, lilac. June. M. Baldo.
- *pratensis* (meadow). 1. White, yellow. August. Crimea. 1820.
- *prostratus* (prostrate). 4. Red. September. Cape of Good Hope. 1824. Evergreen.
- *pseud-armeria* (false-armeria). 1. Purple. August. Crimea. 1820.
- *pulchellus* (pretty). 1. White, red. June. Siberia. 1827.
- *punctatus* (dotted). 1. Pale lilac. August.

- D. pu'gens* (pungent). 1. Pink. August. Spain. 1781.
- repens (creeping). Red. Siberia. 1825.
- rigidus (stiff). 2. Red. July. Caspian Sea. 1802.
- rupicola (rock-inhabiting). 1. Red. June. Italy. 1820.
- Ruthenicus (Russian). 1. Purple. June. Russia. 1816.
- saxatilis (rock). 1. White. June. South Europe. 1816.
- Segui'rii (Seguier's). Switzerland. 1832. Evergreen.
- serotinus (late-flowering). 1. Purple. August. Hungary. 1821.
- serratus (saw-edged). 1. Pink. June. Pyrenees. 1827.
- Siculo (Sicilian). 1. Red. August. Sicily. 1829.
- spinosus (spiny). 2. Pink. July. Mount Lebanon. 1831.
- squarrosus (spreading). 1. White. June. Tauria. 1817.
- Sternbergii (Sternberg's). 1. Red. June. August. 1820.
- suaveolens (sweet-smelling). 1. White. August. 1820.
- suavis (sweet). 1. Pink. July.
- superbus (superb). 2. White. August. Europe. 1596.
- sylvaticus (wood). 1. Red. June. Ratisbon. 1815.
- sylvestris (wild). 1. Red. July. South Europe. 1732.
- Tauricus (Taurian). 1. Pink. July. Tauria. 1831.
- tener (tender). 1. Red. August. Europe. 1817.
- umbellatus (umbel-flowered). Red. July. 1825.
- versicolor (changeable-coloured). 1. Red. August. Russia. 1823.
- virginicus (virgin). 1. Red. June. Montpelier. 1816.

DIAPYNSIA. (From *dis*, two, or twice, and *pente*, five; five sepals compose the calyx, and five stamens with petal-like filaments. Nat. ord., *Diapensiads* [*Diapensiaceæ*]. Linn., 5-Pentandria 1-Monogynia.)

An extremely rare alpine prostrate little under-shrub, from Lapland; yet it requires the protection of a frame in winter, to compensate for the winter covering of snow in its native climate. Seeds or division of the plant; peat and loam; a dry situation on a bank in summer, and a dry corner in a cold pit in winter.

- D. barbata* (small-bearded). 1. White. June. New Jersey. 1851.
- Lapponica (Lapland). 1. White. July. 1801.

DIASTE'MA. (From *dis*, two, and *stemon*, a stamen. Nat. ord., *Gesnerworts* [*Gesneraceæ*]. Linn., 14-Didynamia 2-Angiospermia. Allied to *Conradia*.)

Stove herbaceous perennial. Divisions; cuttings of its young shoots, when two or three inches in length, after commencing to grow; peat and loam. Summer temp., 60° to 85°; winter, 48° to 55°.

- D. ochroleuca* (yellow-white-flowered). 1. August. New Grenada. 1844.



DIBBER, or DIBBLE. This instrument for making holes in which to insert seeds or plants is usually very simple in its construction, being at the best the head of an old spade-handle. To secure uniformity of depth in planting beans, &c., by this instrument, it is useful to have it perforated with holes to receive an iron peg, at two and three inches from the point, as in the annexed outline. It should be shod with iron; for if this be kept bright it will make holes into which the soil will not crumble from the sides. The crumbling is induced by the soil's adhesion to the dibble. For planting potatoes, a dibble with a head three inches in diameter at the point, eight inches long up to the foot-rest, and with a handle four feet long, is to be preferred. For the insertion of seed, a dibble that delivers the seed has been invented by a Mr. Smith, and another by Dr.

Newington; the last is the best.

DIBBLE'MMA. (Derivation not known.)

A stove Fern, allied to *Parkeria*. Division; peat and loam. Summer temp., 60° to 85°; winter, 50° to 55°.

D. Samare'nse (Samarese). E. Ind.

DICE'EMA. (From *dis*, two, and *erma*, a prop; referring to the two bractelets under the flower. Nat. ord., *Leguminous Plants* [*Fabaceæ*]. Linn., 17-Diadelpchia 4-Decandria.)

Stove evergreens, with yellow flowers. Seeds in hotbed, in March; cuttings of half-ripened shoots in sand, under a bell-glass, in bottom-heat, in April or May; peat and loam. Summer temp., 60° to 80°; winter, 50° to 55°.

- D. biarticulatum* (two-jointed). 2. July. E. Ind. 1808.

- elegans* (elegant). 1. July. China. 1819.
- pulchellum (neat). 1. July. E. Ind. 1798.

DICH'LUS. (From *dis*, two, and *cheilos*, a lip; in reference to two divisions of the calyx being longer than the rest. Nat. ord., *Leguminous Plants* [*Fabaceæ*]. Linn., 16-Monadelphica 6-Decandria. Allied to *Hypocalyptus*.)

Greenhouse evergreen. Cuttings of young shoots getting firm at the base, in sand, under a bell-glass; sandy peat. Summer temp., 55° to 80°; winter, 40° to 48°.

D. Lebeckioïdes (Lebeckia-like). 2½. White, yellow. April. Cape of Good Hope. 1826.

DICHOIRIS'NDRA. (From *dis*, twice, *chorizo*, to part, and *aner*, an anther; referring to the anthers being two-celled. Nat. ord., *Spiderworts* [Commelinaceæ]. Linn., 6-*Hexandria* 1-*Monogynia*. Allied to *Campelia*.)

D. thyrsiflora is the handsomest plant of this order, and one of the best stove plants in cultivation, for winter or late autumnal flowering. We have seen it, under liberal treatment, rise to ten feet, branched all round, and every branch ending in a long spike or thyrsae of densely-set, sky-blue flowers. When the flowers begin to expand, it may be removed to a warm conservatory, where it will last in bloom from six weeks to two months. Stove herbaceous perennials, from Brazil. Division of the plant, when growth is commencing; seeds sown in a hotbed in spring; peat and loam, with sand and leaf-mould. Summer temp., 60° to 80°; winter, 45° to 55°.

D. discolor (two-coloured). September. 1848.
— *gracilis* (slender). 1½. Blue. August.
— *leucophthalmus* (white-eyed). Blue and white. June. Brazil.
— *ovalifolia* (oval-leaved). Purple. May. 1846.
— *oxyptala* (sharp-petaled). 2. Red. August. 1810.
— *pieta* (painted-leaved). ½. Blue. September. 1830.
— *puberula* (downy). 3. Blue. August. 1823.
— *thyrsiflora* (thyrsae-flowered). 4. Blue. August. 1822.

DICKSONIA. (Named after James Dickson, a British botanist, who studied this Nat. ord., *Ferns* [Polypodiaceæ]. Linn., 24-*Cryptogamia* 1-*Filices*.)

Who that has visited the first resting-place of the remains of Napoleon Buonaparte, at St. Helena, did not admire the native tree-ferns, *D. arboreascens*, a little beyond? To transport this memorial, with the weeping willow, to our own and other shores, any time within a month before your departure from the island, cut off all the branches or fronds to within two inches of the stem, making a clean cut from the under-side; clear away the soil till you see the fang-like roots; cut them with a chisel and mallet without moving the stem; smooth the cut end of the roots, and the trunk is ready to travel, packed in a *dry case*. When the gardener receives it, let him set the bottom of the trunk on a bed or box of half sand, and half peat, in a temperature of 80°, and give no water for the first six weeks. The new leaves by that time issue from the top; water then in abundance. Thus any of the colossal Ferns or Cacti may be safely removed. Division of the roots; best done when growth is commencing; peat and loam. Summer temp., 60° to 80°; winter, 45° to 55°.

D. adiantoides (adiantum-like). 2. November. W. Ind. 1828.
— *antarctica* (antarctic). September. N. Holland. 1824.
— *arboreascens* (tree-like). 15. September. St. Helena. 1786.
— *Davalliodes* (*Davallia*-like). 3. September. N. Holland.
— *dissecta* (cut-leaved). 3. August. Jamaica. 1792.

D. pilosiuscula (rather-hairy). 2. August. N. Amer. 1811.

— *rubiginosa* (rusty). Brazil.
— *scaendens* (climbing).
— *squamosa* (scaly). New Zealand.

DICLIPTERA. (From *dis*, twice, and *kleio*, to shut; referring to the two-celled capsule, or seed-vessel. Nat. ord., *Acanthads* [Acanthaceæ]. Linn., 2-*Diandria* 1-*Monogynia*. Allied to *Justicia*.)

Annuals, by seed in a hotbed, in spring; perennials, by cuttings of side-shoots, or the points of shoots, in sandy soil, in bottom-heat, with a hand-light, not so close as a bell-glass. Loam and peat, open and fibry, with a little rotten leaf-mould. Summer temp., 60° to 85°; winter, 45° to 55°.

STOVE ANNUALS.

D. hexangularis (six-angled). 2. Red. July. S. Amer. 1733.
— *resupinata* (lying-back). 1½. White, purple. March. S. Amer. 1805.

GREENHOUSE PERENNIALS.

D. Chinensis (Chinese). Pale blue. September. E. Ind. 1816. Herbaceous.
— *verticillaris* (whorl-flowered). 1. Purple. May. Cape of Good Hope. 1826. Evergreen.

STOVE EVERGREENS, &c.

D. Cassuigens (rising). 2. Red. July. W. Ind. 1818.
— *bivalvis* (two-valved). ½. Purple. June. E. Ind. 1818.
— *Martinicensis* (Martinique). 2. Purple. July. W. Ind. 1818.
— *pectinata* (comb-like). 1½. Blue. June. E. Ind. 1798.
— *Peruviana* (Peruvian). 2. Purple. June. Peru. 1818.
— *retusa* (abrupt-ended). 2. Purple. July. W. Ind. 1821. Herbaceous.
— *scorpioïdes* (scorpion-like). 3. July. Vera Cruz. 1802.
— *spinosa* (spiny). 2. Yellow. April. Mauritius. 1824.

DICTAMNUS. *Fraxinella*, or *Dittany*. (*Dictamnus*, a name adopted from Virgil; *Fraxinella* a diminutive of *fraxinus*, the ash, from the similarity of their leaves. Nat. ord., *Rueworts* [Rutaceæ]. Linn., 10-*Decandria* 1-*Monogynia*.)

This is one of the oldest and best border-plants of our cottage-gardens. Instances are known where the *Fraxinella* has outlived father, son, and and grandson in the same spot, without increase, all attempts at multiplying it, to give away a rooted slip to a newly-married member of the family, having failed; yet the *Fraxinella* is easily increased from seeds. Sow, as soon as they are ripe, in the common soil of the border, and cover one inch deep; they will not sprout till the following April. If they are kept over the winter, and sown in the following spring, they will remain twelve months before they sprout; and not one seed out of a hundred sprouts at all. When the seedlings are two years old, transplant them where they are to remain, and they will flower the third season. They prefer a deep, rich border, on a dry bottom, and all flower in June.

D. albus (white). 3. White. Germany. 1596.

D. angustifolius (narrow-leaved). 2. Lilac. Altai. 1821.
— *frazinella* (frazinella). 3. Purple. Germany. 1596.

DICTYA'NTEUS. (From *dictyon*, network, and *anthos*, a flower; alluding to the markings on the corolla. Nat. ord., *Asclepiads* [*Asclepiadaceæ*]. Linn., 5-*Pentandria* 1-*Monogynia*.)

Stove climber. For culture, see **PASSIFLO'RA**.
D. Pavonii (Pavon's). 10. Green, brown. September. New Spain. 1854.

DICTYOGLOSSUM. See **ACROSTICHUM CRINITUM**.

DICTY'MIA ATTENUA'TA. A very pretty Fern, brought from New Holland in 1828; requires only the shelter of a greenhouse and the usual cultivation. See **FERNs**.

DICTYOPTERIS. (From *dictyon*, network, and *pteris*, a Fern; referring to the leaves, or fronds.)

Greenhouse Ferns. See **FERNs**.

D. attenuata (tapering). June. Australia.
— *lanceolata* (spear-head-leaved). June. Mauritius. 1824. Stove.
— *macrodonata* (large-toothed). May. Australia. 1840.
— *pteroides* (brake-like). June. Australia. 1842.

DIDYMOCA'RPUS. (From *didymos*, twin, and *carpos*, fruit; referring to a double division along the centre of the seed-vessel. Nat. ord., *Gesnerworts* [*Gesneraceæ*]. Linn., 14-*Didynamia* 2-*Angiospermia*. Allied to *Chirita*.)

This must not be confounded with its ally, *Streptocarpus*. Stove herbaceous. Division; cuttings of young shoots, when commencing growing, in sandy soil, in bottom-heat; peat and loam, with sand, a little turf-mould, and rotten cow-dung. Summer temp., 60° to 80°; winter, 45° to 55°.

D. crinitus (long-haired). 1. White, yellow. July. Pulo Penang. 1845.
— *Humboldtiana* (Humboldt's). Lilac. October. Ceylon.

DIDYMOCHLE'NA. (From *didymos*, twin, and *chlaina*, a cloak; referring to the coverings of the spore-cases, called seed-vessels. Nat. ord., *Ferns* [*Polypodiaceæ*]. Linn., 24-*Cryptogamia* 1-*Filices*.)

Handsome stove Ferns, allied to *Oxygonium*. Divisions; peat and loam. Summer temp., 60° to 85°; winter, 50° to 55°.

D. pulcherrima (fairest). July. Brazil.
— *truncatula* (little tree). 4. June. Brazil. 1838.

DIELY'TRA. (From *dis*, two, and *elytron*, a sheath; referring to the two sepals, which embrace the flowers in this order, and give the remarkable brilliancy to the flowers of *D. spectabilis*. Nat. ord., *Fumeworts* [*Fumariaceæ*]. Linn., 17-*Di-*

adelphia 2-*Hexandria*. Allied to *Corydalis*.)

D. spectabilis is the most brilliant hardy plant added to our collections for many years, but furnishes the most obvious example of the remarkable economy of the sexual organs of its race. The flowers of *Fumitories* never open, and their peculiar construction seems to offer no means for the pollen to escape; but, by a peculiar contrivance connected with the parts, fecundation is effectually and simply brought about. We have failed, however, to effect the process artificially with *D. spectabilis*. This most beautiful plant was described by Linnæus from dried specimens, but was not seen alive by any European until Mr. Fortune found it in gardens in the north of China, and sent it, in 1846, to the London Horticultural Society. It is a spring-flowering, deciduous, herbaceous plant, with large fleshy roots; the stalks and leaves rise to 18 inches or two feet, and look like a small-leaved tree-peony; the flowers are produced on spikes from four to six inches long, and hanging down gracefully on one side. It requires rich, light soil, and is readily increased by dividing the crown of the roots early in spring, or by cuttings after the plant is in growth. It will find its way, like the China Rose, into every cottage-garden. All hardy herbaceous, and flowering in June; the same culture is applicable to all the species.

D. bracteosa (bracted). 1. White. N. Amer. 1823.
— *Canadensis* (Canadian). 2. White. N. Amer. 1819.
— *cucullaria* (monk's-hood). 2. White. N. Amer. 1731.
— *eximia* (choice). 1½. Flesh. N. Amer. 1812.
— *formosa* (handsome). 1. Flesh. N. Amer. 1796.
— *Lachenaliaeflora* (*Lachenalia*-flowered). 1. Purple. Siberia. 1826.
— *speciosa* (showy). 1. Flesh. 1210.
— *spectabilis* (remarkable). 1½. Purple. Siberia. 1810.
— *tenuifolia* (fine-leaved). 2. Pink. Kamtschatka. 1820.

DIERY'LLA. (Named after *M. Dierville*, a French surgeon. Nat. ord., *Caprifoli*s [*Caprifoliaceæ*]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Leycesteria*.)

A creeping-rooted, hardy shrub. Suckers from the roots; cuttings in the open ground, in autumn; common, moist, shaded garden-soil.

D. lutea (yellow-flowered). 3. June. N. Amer. 1739.

DIE'TIS. See **MORÆA**.

DIGGING with the spade or fork has for its object a loosening of the soil so as to render it more fit for the reception of seeds or plants. Begin at one end of the piece of ground, and with your spade open a trench quite across, one good spade wide and one deep, carrying the earth to the end where you finish; then, keeping your face to the opening, proceed to dig one spade deep regularly from one side of the piece to the other, turning the spits neatly into the trench, and the next course against these; and so keep digging straight back, spit and

spit, still preserving an open trench, a good spade width and depth, between the dug and undug ground, that you may have full room to give every spit a clean turn, taking all the spits perpendicularly, and not taking too much before the spade, especially in stiff land, or where the surface is full of weeds, or is much dunged; so giving every spit a clean turn, the top to the bottom and the bottom to the top, that the weeds or dung on the surface may be buried a due depth, and that the fresh earth may be turned up. As you proceed, break all large clods, and preserve an even surface carrying both sides and middle on equally, unless one side shall be hollow; then carry on the hollow side first in a gradual sweep, inclining the spits of earth rather that way, which will raise that side and reduce the high one, observing the same if both sides are high and the middle hollow, or both sides hollow and the middle high, always keeping the lower ground advancing gradually before the higher, by which you will always maintain a uniform level.

The same should also be observed in beginning to dig any piece of ground, that if one corner is much lower than another, carry on the lower part somewhat first, in a slanting direction, as far as necessary. Likewise, in finishing any pieces of digging, gradually round upon the lower side so as to finish at the highest corner; and having dug to where you intend to finish, then use the earth taken out of the first trench to make the last opening equal with the other ground. In plain digging dunged ground, if the dung is quite rotten you may dig clean through, giving each spit a clean turn to bury the dung in the bottom of the trench; but if you cannot readily do this, trim the dung a spade's width at a time into the furrow or open trench, and so dig the ground upon it, which is rather the most effectual method, whether rotten or long fresh dung.

All weeds that are perennial should be carefully picked out, particularly couch-grass and bear-bind. But annual weeds, groundsel, and the like, should be turned down to the bottom of the trench, where they will rot.

A man will dig, by plain digging of light, free-working, clean ground, eight, ten, or twelve rods a day, from six to six, though in some of the light, clean ground about London, a man will turn up fifteen

or twenty rods a day, from five to seven; but in stiff, stubborn soils, a man may work hard for six or eight rods in a day of twelve hours. *Trenching*, if only one spade deep, without the crumbs or shovelling at bottom, a man will dig almost as much as by plain digging; or two spades' depth, from four to six rods a day may be good work, though in harsh-working ground digging three or four rods per day may be hard work.—(Mawe.) Most garden soils dig best the day after a fall of rain; and if the soil has in its composition a larger proportion than usual of clay, the operation will be facilitated by dipping occasionally the spade into water. Most gardeners object to digging while snow is upon the ground, and the objection is not mere prejudice, for experience proves the bad result of the practice. The evil is owing to the great quantity of heat required to reduce ice or snow from the solid to the fluid state; and when buried so that the atmospheric heat cannot act directly upon it, the thawing must be very slowly effected, by the abstraction of heat from the soil by which the frozen mass is surrounded. Instances have occurred of frozen soil not being completely thawed at midsummer.

DIGITALIS. Foxglove. (From the Latin *digitale*, a finger-stall; referring to the shape of the flowers. Nat. ord., *Figwortis* [Scrophulariaceæ]. Linn., 14-*Didynamia* 2-*Angiospermia*.)

The seeds sown in the autumn; when sown in the spring, they will not come up till twelve months before the plants are fit for use. Most of them please.

D. erio (white). 3. L. Italy.

— *fer* (red). 3. L. Italy.

— *pu* (purple). 3. L. Italy.

— *—* (white). 3. L. Italy.

D. ambigua (white). 3. L. Italy.

— *ambigua* (white). 3. L. Italy.

— *ambigua* (white). 3. L. Italy.

— *ambigua* (white). 3. L. Italy.

— *ambigua* (white). 3. L. Italy.

— *ambigua* (white). 3. L. Italy.

— *ambigua* (white). 3. L. Italy.

— *ambigua* (white). 3. L. Italy.

— *ambigua* (white). 3. L. Italy.

— *ambigua* (white). 3. L. Italy.

— *ambigua* (white). 3. L. Italy.

— *ambigua* (white). 3. L. Italy.

— *ambigua* (white). 3. L. Italy.

— *ambigua* (white). 3. L. Italy.

- D. lu'tea fucata* (dyed). 2. Yellow, red. June. South Europe.
— me'dia (intermediate). 2. Yellow. June. Germany. 1817.
— micra'ntha (small-flowered). 2. Yellow, brown. July. Switzerland. 1817.
— mi'nor (smaller). $\frac{3}{4}$. Purple. July. Spain. 1789.
— nervo'sa (large-nerved-leaved). Yellow. July. 1836.
— obscu'ra (obscure). 1. Orange. June. Spain. 1778. Half-hardy evergreen.
— ochroleu'ca (yellowish-white). 4. June. Europe.
— orienta'lis (eastern). $1\frac{1}{2}$. White. June. Levant. 1820.
— parvifo'ra (small-flowered). $1\frac{1}{4}$. Brown. July. 1798.
— purpura'scens (purplish). 2. Pink. June. Germany. 1776.
— ri'gida (stiff). $1\frac{1}{2}$. Yellow, red. June.
— Sibi'rica (Siberian). Yellow, red. July. Siberia. 1826.
— Tha'psi (Thapsi). $1\frac{1}{4}$. Purple. June. Spain. 1752.
— tomento'sa (woolly). 3. Red. July. Portugal. 1818.
— tubifo'ra (tube-flowered). 2. Yellow. June.
— viridifo'ra (green-flowered). July. Levant. 1827.

DILA'TRIS. (From *dilato*, to open wide; referring to the opening of the flower. Nat. ord., *Bloodroots* [Hæmodoracæ]. Linn., 3-Triandria 1-Monogynia. Allied to Anigozanthos.)

Greenhouse herbaceous plants, with sword-shaped leaves, from the Cape of Good Hope. Divisions, when fresh growth is commencing; seeds in a slight hotbed, in March or April; sandy loam and peat. Summer temp., 55° to 75°; winter, 40° to 45°.

- D. corymbo'sa* (corymb-flowered). 1. Purple. May. 1790.
— panicula'ta (panicked-flowered). 1. Blue. June. 1825.
— visco'sa (clammy). $\frac{3}{4}$. Blue. 1795.

DILL. (*Anethum grave'olens*.) Its leaves and umbels are used in pickling, and the former in soups and sauces.

Soil.—It may be cultivated in any open compartment; but if for seed, a sheltered soil, rather dry.

Sowing.—Sow immediately the seed is ripe, for if kept out of the ground until the spring it often is incapable of germinating. If neglected until the spring, sow from the close of February until the commencement of May. Sow in drills a foot apart, the plants to remain where sown. When of three or four weeks' growth thin them to about ten inches apart. The leaves are fit for gathering as wanted, and the umbels about July and August. In September their seed ripens, when it must be immediately cut, and spread on a cloth to dry, being very apt to be shed.

DILLE'NIA. (After *Dillenius*, once pro-

fessor of botany at Oxford. Nat. ord., *Dilleniads* [Dilleniaceæ]. Linn., 13-Polyandria 6-Polygynia.)

Valuable timber-tree, with leaves after the manner of Magnoliads. Stove tree. Cuttings of ripe wood in sand, under a glass, in bottom-heat, in April; sandy loam. Summer temp., 60° to 85°; winter, 48° to 55°.

- D. specio'sa* (showy). 30. White, yellow. E. Ind. 1800.

DILLWYNIA. (In honour of *L. W. Dillwyn*, a British patron of botany. Nat. ord., *Leguminous Plants* [Fabacæ]. Linn., 10-Decandria 1-Monogynia. Allied to Eutaxia.)

Greenhouse evergreens, with yellow or orange-coloured flowers, from New Holland. Cutting of firm side-shoots in March or April, in sand, under a bell-glass; seeds in peaty soil, in a slight hotbed, in March; sandy peat two parts, fibry loam one part, with a little silver sand, and pieces of charcoal. Summer temp., 55° to 75°; winter, 40° to 88°.

- D. acicula'ris* (needle-leaved). $1\frac{1}{2}$. May. 1826.
— cinera'scens (greyish-leaved). 2. May. 1819.
— clava'ta (club-shaped). 3. May. 1839.
— ericifo'lia (heath-leaved). 2. May. 1794.
— floribu'nda (bundle-flowered). 2. May. 1794.
— glabe'rimum (smoothest). 2. May. 1800.
— glycini'folia (glycine-leaved). $1\frac{1}{4}$. April. 1830.
— juniperi'na (juniper-leaved). 2. May. 1818.
— parvifo'lia (small-leaved). 2. May. 1800.
— physici'des (physic-like). 2. May. 1824.
— pungens (pungent). June. 1825.
— ru'dis (rustic). 2. April. 1824.
— brevifo'lia (short-leaved). 2. April. 1824.
— hispida (slight-bristled). 2. May. 1824.
— teretifo'lia (round-leaved). 2. May.
— sericea (silky). $1\frac{1}{2}$. April. 1824.
— specio'sa (showy). 2. June. 1838.
— tenuifo'lia (fine-leaved). $1\frac{1}{4}$. May. 1824.

DIMA'CRIA. (One of seventeen sections into which the genus *Pelargonium* has been split. From *dis*, twice, and *makros*, long; referring to the two lower stamens being twice the length of the other three.)

There are about twenty species included under this head, all little botanical things, with fleshy or tuberous roots. Generally they are grown in sandy peat; they live much longer, however, confined in small pots in equal quantities of peat, loam, and pounded brick, well drained.

DINE'TUS. (From *dinetos*, to twine; alluding to the mode of growth. Nat. ord., *Bindweeds* [Convolvulacæ]. Linn., 5-Pentandria 1-Monogynia.)

Cuttings of side-shoots in sandy soil, and in heat; light, rich soil. The annual may be sown in a little heat, and transplanted in May, and it will thrive like the *Convolvulus*.

- D. panicula'ta* (panicked). 10. White. August. E. Ind. 1823. Evergreen twiner.
— racemo'sa (racemed). 12. White. August. Nepaul. 1823. Annual twiner.

DICE'IOUS. Two-housed; applied to any species having the female and male

flowers in separate flowers on separate plants.

DIOME'DEA. (After *Diomeda*, a classical name. Nat. ord., *Compositæ* [Asteracæ]. Linn., 19-Syngenesia 2-Superflua.)

This genus of greenhouse evergreens should be united to *BURTHALMUM*, which see for culture. They have all yellow flowers.

D. argentea (silvery-leaved). 2. June. S. Amer. 1824.

— *bidentata* (two-toothed). 2. July. W. Ind. 1696.

— *glabrata* (smooth). 3. June. S. Amer. 1699.

DI'ON. (From *dis*, two, and *oon*, an egg; referring to the two-lobed scales which compose the large cones of the Cycad, bearing a large nut-like seed at the bottom of each scale; otherwise from seeds being borne in twos. Nat. ord., *Cycads* [Cycadacæ]. Linn., 22-Diæcia 11-Dodecandria. Allied to *Cycas revoluta*.)

A fine Palm-like plant. The fruit of this Dion, which is as large as a chestnut, is powdered by the natives, and formed into a kind of arrowroot. Supposed to be propagated by suckers, and seeds when obtainable; rough, sandy loam, with some broken bricks and charcoal. Summer temp., 60° to 90°; winter, 55° to 60°.

D. edule (eatable-seeded). 2. April. Mexico. 1844.

DIONE'A. Venus's Fly-trap. (After *Dione*, one of the names of Venus. Nat. ord., *Sundews* [Droceracæ]. Linn., 10-Dodecandria 1-Monogynia.)

Notwithstanding all the fables about this plant, it is one of extreme interest to cultivators, owing as much to the care and skill necessary for its management, as to the irritability displayed by the stipular fringes on the winged leaves. The irritability is in three hair-like teeth, set on either side of a hollow leaflet on the top of the main leaf, so situated that an insect cannot pass along, or alight on the part, without touching one of them, when they suddenly fold, like the fingers of the two hands clasped together, and enclose the insect with a firmness beyond its strength to escape. Greenhouse evergreen. Division of the plant; seeds at times; leaves laid in damp moss, under a glass, will sometimes emit a young plant at its margin; peat earth, with a little sphagnum, moss, and bits of potsherds broken small. The pot is set in a pan, stuffed round, not very tight, with clear moss, and the pan filled with water; a bell-glass is placed over the plant, but kept from going close down all round. Summertemp., 60° to 85°; winter, 50° to 60°.

D. muscipula (fly-catcher). $\frac{1}{2}$. White. July. Carolina. 1788.

DIOSCO'REA. Yam. (After *P. Dioscorides*, a Greek physician. Nat. ord., *Yamworts* [Dioscoreacæ]. Linn., 22-Diæcia 6-Hexandria.)

Stove, green-flowered, tuberous-rooted plants, used as potatoes. Dividing the tubers; light, rich soil. Summer temp., 60° to 80°; winter, 50° to 55°.

D. aculeata (prickly-stemmed). 10. E. Ind. 1803.

— *ala'ta* (wing-stalked). 15. India. 1739.

— *Brasilien'sis* (Brazilian). 8. Brazil. 1823.

— *bulbifera* (bulb-bearing). 12. July. E. Ind. 1696.

— *cinnamonifolia* (cinnamon-leaved). 6. Rio Janeiro. 1827.

— *pentaphylla* (five-leaved). 10. E. Ind. 1768.

— *sativa* (common-cultivated-yam). 20. August. W. Ind. 1733.

DIO'SMA. (From *dios*, divine, and *osme*, odour; referring to the powerful perfume which characterizes these and other Rueworts [Rutacæ]. Linn., 5-Pentandria 1-Monogynia.)

These are among the Bucku-plants of the Cape colonists, and old inhabitants of our greenhouses; but some of the more showy species now form the new genera *Adenandra*, *Azathosma*, *Barosma*, &c. Greenhouse evergreens, from the Cape of Good Hope. All are white-flowered, except where otherwise mentioned. Cuttings of short-jointed young shoots in April, in sand, under a bell-glass; sandy peat three parts, fibry loam one part, with silver sand and a few pieces of charcoal, to keep the soil open; some of the most robust species should have more loam, but in a fibry, rough state. Summer temp., 55° to 75°; winter, 40° to 45°.

D. cordata (heart-shaped). $\frac{1}{2}$. May. 1823.

— *corymbosa* (corymb-flowered). $\frac{1}{2}$. May. 1818.

— *cupressifolia* (cypress-leaved). $\frac{1}{2}$. Pink. May. 1790.

— *ericoides* (heath-like). 2. June. 1756.

— *fatidissima* (most fetid). 2. June. 1824.

— *hirsuta* (hairy-leaved). 4. Pink. May. 1731.

— *hybrida* (hybrid). 2. May. 1823.

— *longifolia* (long-leaved). 2. June.

— *oppositifolia* (opposite-leaved). 3. June. 1752.

— *pectinata* (comb-leaved). 1. Blue. May. 1812.

— *punctata* (dotted). 2. June. 1823.

— *purbra* (red). 2. Red. March. 1752.

— *scoparia* (broom-like). $\frac{1}{2}$. June. 1812.

— *sphaerocephala* (round-headed). May.

— *squamosa* (scaly). 1. June. 1818.

— *subulata* (awl-shaped-leaved). 3. June. 1818.

— *succulentata* (succulent-leaved). 2. June.

— *tene'lla* (delicate). 1. May. 1823.

— *tenuissima* (slenderest). 1. July. 1820.

— *tenuifolia* (slender-leaved). 2. June.

— *tetragona* (four-angled). 1. June. 1769.

— *ulicina* (furze-like). 1. May. 1823.

— *virgata* (twiggy). 1. June. 1820.

DIOSPYROS. The Date Plum. (From *dios*, divine, and *puros*, wheat; literally, celestial food. Nat. ord., *Ebenads* [Ebenacæ]. Linn., 23-Polygamia 2-Diæcia.)

The European Lotus, or Date Plum, is rather tender in Britain, but ripens its fruit in the south of France. The Virginian *Diospyros*, of which Loudon says all the other American sorts are only varieties, is not unlike the European Lotus; it thrives best in damp peat, and is often much injured by frost. In India many species of *Diospyros* are found, where they are remarkable for the hardness of the wood. The Ebony on which the order is founded is *D. ebenus*. The Iron-wood is also one of the species. The Kau Apple of the Cape, and the Kaki preserve from China, are said to be the fruit of a *Diospyros*. Greenhouse species by cuttings of half-ripened shoots in sand, under a bell-glass. Stove species strike best from ripened shoots in sand, under a

glass, and in a brisk bottom-heat, any time from March to May. The hardy species are best propagated by seeds, and sown out of doors in a sheltered, moist place.

HARDY.

- D. lotus* (lotus). 20. Yellow, green. June. Italy. 1596. Evergreen.
 — *lucida* (shining). 15. Yellow. June. N. Amer. 1820.
 — *tubescens* (downy). 20. Yellow, green. April. N. Amer. 1812. Evergreen.
 — *Virginia'na* (Virginian). 20. Yellow, green. June. N. Amer. 1629.
 — — *du'cis* (sweet). Yellow. July. America. 1629.

GREENHOUSE EVERGREENS.

- D. Kaki* (Kaki). 12. White, green. Japan. 1789.
 — *loba'ta* (lobe-fruited). 16. China. 1822.
 — *monta'na* (mountain). 6. White, green. E. Ind. 1822.
 — *reticul'a'ta* (netted). 20. Mauritius. 1824.
 — *rugulo'sa* (small-wrinkled). 20. N. Holland. 1823.
 — *vaccinio'des* (vaccinium-like). 2. White. May. China. 1823.

STOVE EVERGREENS.

- D. chloro'sylon* (green-wooded). 20. White. E. Ind. 1822.
 — *cordifo'lia* (heart-leaved). 15. White, green. E. Ind. 1794.
 — *discolor* (two-coloured). 20. Philippine. 1821.
 — *eben'ster* (ebenaster). 20. Bengal. 1792.
 — *eben'num* (ebony). 30. White. E. Ind. 1792.
 — *edul'is* (eatable). 20. E. Ind. 1824.
 — *embryo'pteris* (embryopteris). 25. White, green. July. E. Ind. 1818.
 — *hirsu'ta* (hairy). 20. Ceylon. 1820.
 — *lycio'des* (lycium-like). 10. 1806.
 — *Mabo'la* (Mabola). 8. Yellow, green. Philip-pines. 1822.
 — *melano'sylon* (black-wooded). 20. White. E. Ind. 1817.
 — *obova'ta* (reversed-egg-leaved). 15. White, green. W. Ind. 1796.
 — *Sapo'ta* (Sapota). White. July. Philippines. 1843.
 — *sylo'a'tica* (wood). 20. White. E. Ind. 1812.

DIPHYLLA. (From *dis*, two, or twice, and *phake*, a lentil; referring to the seed-pods being divided into two divisions, having one seed in each. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 17-*Diadelphia* 4-*Decandria*.)

A greenhouse evergreen, of strong habit; old plants of it may be turned out into the borders in summer, and left to their fate, young ones only being good for pot cultivation. Cuttings of half-ripened shoots in April; peat and loam. Summer temp., 60° to 80°; winter, 45° to 48°.

D. Cochinchine'nsis (Cochin China). 3. White. China.

DIPHYLLE'JA. (From *dis*, two, and *phyllon*, a leaf; the leaves produced in twos. Nat. ord., *Berberids* [Berberida-cæe]. Linn., 6-*Hexandria* 1-*Monogynia*. Allied to *Jeffersonia*.)

A pretty, hardy herbaceous plant, best treated as an alpine plant, or on the shady side of a rock-work; divisions; rich, light soil.

D. cymo'sa (cyme-flowered). 2. White. May. N. Amer. 1812.

DIPHY'SA. (From *dis*, two, and *physa*, a bladder; referring to the seed-pods being produced in twos, and bladdery-like, as in *Sutherlandia*, to which it is nearly allied. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 17-*Diadelphia* 4-*Decandria*.)

Stove evergreen. Cuttings of young shoots, a little firm at the base, in sand, under a glass, and in a mild bottom-heat; sandy loam and fibry peat. Summer temp., 60° to 85°; winter, 50° to 55°.

D. Carthagine'nsis (Carthage). 10. Yellow. Carthage. 1827.

DIP'LACUS. (From *dis*, two, and *plakos*, a placenta, or the part inside a seed-pod on which the seeds originate. When the seeds are ripe, the placenta in this and some other genera divides into two parts, — a very slight feature to separate *Diplacus* from *Mimulus*, to which it is allied. Nat. ord., *Figworts* [Scrophularia-cæe]. Linn., 14-*Didynamia* 2-*Angiosper-mia*.)

This and the old *Mimulus glutinosus* are as nearly one and the same thing, botanically considered, as any two plants can be; yet they will not interbreed. Both are good plants for turning out into warm borders through the summer, and for planting in mixed flower-beds. Greenhouse evergreens, from California. Cuttings of young shoots, getting firm at the base, in April, in sand, under a bell-glass; rich, fibry loam, with a little peat. Summer temp., 55° to 75°; winter, 40° to 45°.

D. glutinosus (clammy). 3. Orange. 1794.
 — *punctatus* (scarlet-flowered). 4. Scarlet. 1837.

DIPLADE'NIA. (From *diploos*, a double, and *aden*, a gland; referring to the presence of two gland-like processes on the ovary. Nat. ord., *Dogbanes* [Apocynaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Mandevilla*.)

Stove evergreen twiners. Cuttings of ripe shoots in sand, under a glass, and in a sweet bottom-heat; turfy peat, with silver sand, and plenty of drainage; abundance of water in summer, but very little in winter. Summer temp., 60° to 80°; winter, 55° to 60°.

D. acumina'ta (pointed-petaled). 10. Pink. July. Brazil. 1854.

— *a'tro-purpu'rea* (dark purple). 10. Dark purple. July. Brazil. 1842.

— *crassino'da* (thick-jointed). 10. Rosy. October. Rio Janeiro.

— *fla'va* (yellow-flowered). Yellow. May. New Granada. 1845.

— *Harris'i* (Lord Harris's). 10. Yellow. September. Trinidad. 1854.

— *splendens* (shining). 10. Rose. July. Organ Mountains. 1841.

— *urophy'lla* (tail-leaved). 3. Deep salmon. Brazil. 1847.

DIPLAZIUM. (From *diplozo*, to double;

referring to the double covering of the spore-cases, or seed-vessels.)

A genus of handsome stove evergreen Ferns, or Polypods. The root-stocks of *D. esculentum* are eaten in India by natives. The spores of all are brown, or brownish-yellow; divisions; loam and peat. Summer temp., 60° to 85°; winter, 50° to 55°.

- D. acuminatum* (long-pointed-leaved). $\frac{1}{2}$. Brazil.
- *affine* (allied). Isle of Luzon.
- *arborescens* (tree-like). 12. Mauritius. 1826.
- *atimæfolia* (water-plantain-leaved). Isle of Luzon.
- *auriculatum* (eared). 10. August. Caraccas. 1820.
- *Barbadense* (Barbadoes). August. W. Ind. 1822.
- *brevisolum* (short-flowered). Isle of Luzon.
- *castaneæfolium* (chestnut-leaved). 1. July. Guiana. 1824.
- *caudatum* (tailed). Isle of Luzon.
- *coarctatum* (close-pressed). Brazil. 1841.
- *decussatum* (cross-fronded). 2. June. E. Ind.
- *deflexum* (turned-down). Malacca.
- *ebenum* (black). Isle of Luzon.
- *elegans* (elegant). July.
- *esculentum* (edible). 3. E. Ind. 1822.
- *extensum* (lengthened). Malacca.
- *frondosum* (frondose). August. E. Ind.
- *grandifolium* (large-leaved). 4. August. Jamaica. 1793.
- *integrifolium* (entire-leaved). June. Java.
- *juglandifolium* (walnut-leaved). 3. August. Jamaica. 1822.
- *Malabaricum* (Malabar). 8. E. Ind. 1818.
- *ovata* (egg-shaped). April. Isle of Leyte.
- *plantaginæum* (plantain-leaved). 2. August. W. Ind. 1819.
- *porrectum* (stretched-out). Malacca.
- *Seramporensis* (Serampore). 3. August. Serampore. 1820.
- *Schkuhræi* (Schkuhr's) Malacca.
- *Shepherdii* (Shepherd's). Brazil. 1822.
- *spinulosa* (small-spined). July. Java.
- *striatum* (streaked). 1. August. W. Ind. 1793.
- *thypteroides* (thypteris-like). 1. July. N. Amer. 1823.
- *undulatum* (wavy). August.
- *vittæformis* (vittaria-like). July. Isle of Java.
- *Walliæhi* (Wallieh's). April. E. Ind.

DIPLOCHITA. (From *diploos*, double, and *chiton*, a coat of mail; referring to a cup-like process covering the top of the ovary. Nat. ord., *Melastomads* [Melastomaceæ]. Linn., 8-Octandria 1-Monogynia.)

Stove evergreens. Cuttings of side-shoots in sand, under a glass, and in heat, in April; peat and loam. Summer temp., 60° to 85°; winter, 55° to 60°.

- D. Fothergillæ* (Fothergill's). 15. White. May. Trinidad. 1818.
- *macrophylla* (large-leaved). 10. Rose. May. Mexico. 1820.
- *Swartziana* (Swartz's). 12. Rose. April. Jamaica. 1816.

DIPLOCOMA. (From *diploos*, double, and *koma*, a hair; referring to the two forms of the pappus, or seed appendages. Nat. ord., *Compositæ* [Asteraceæ]. Linn., 19-Syngenesia 2-Superflua.)

Rather a pretty perennial border-plant, but not quite hardy. We have adopted the name by which it is best known; but the original and legitimate name is *Elerotheca*. Division; common soil, in a dry, sheltered place.

D. villosa (long-haired). 1. Yellow. June. Mexico. 1826.

DIPLOMÆNA. (From *diploos*, double, and *læna*, a cloak; referring to the coating of the ripe fruit splitting into two divisions, as is general in this section of *Rueworts* [Rutaceæ]. Linn., 10-Decandria 1-Monogynia. Allied to *Correa*.)

Greenhouse evergreens, from Swan River, with cream-coloured flowers. Cuttings of young shoots getting firm; peat, and a very little fibry loam. Summer temp., 55° to 75°; winter, 40° to 45°.

- D. angustifolia* (narrow-leaved). May.
- *grandiflora* (large-flowered). 4. May.
- *Dampieri* (Dampier's). 4. April. 1837.

DIPLOPAPPUS. (From *diploos*, double, and *pappos*, a plume; referring to the feathery ornaments called pappus, which crown the seeds, as in the Dandelion. Nat. ord., *Compositæ* [Asteraceæ]. Linn., 19-Syngenesia 2-Superflua. Allied to *Calistephus*.)

All by cuttings under a hand or bell-glass; sandy loam; they require the protection of a cold pit in winter. *Aster filifolius*, *linarifolius*, *obtusatus*, *pluriflorus*, and *rigidus* have recently been added to this genus. See **ASTER**.

D. incanus (hoary-herbage). 2. Light yellow. August. California. 1832.

DIPLOPELTIS. (From *diploos*, double, and *pelte*, a shield; referring to a double appendage attached to the inside of the petals. Nat. ord., *Soapworts* [Sapindaceæ]. Linn., 23-Polygamia 1-Monœcia.)

Greenhouse evergreen. Cuttings of young shoots in sandy soil, under a glass, in April; peat and loam. Summer temp., 50° to 75°; winter, 40° to 45°.

D. Hugelii (Baron Hugel's). 1. Rose, white. July. Swan River. 1837.

DIPLOTHEMIUM. (From *diploos*, double, and *thema*, a sheath; referring to the spathe, or sheath, out of which issues the flower-stem of Palms, Arums, &c. Nat. ord., *Palms* [Palmaraceæ]. Linn., 21-Monœcia 9-Enneandria. Allied to *Cocos*.)

Those who cannot afford head-room for the giants of this noble race have here three dwarf species to represent the order. Stove Palms. Seeds; rich, fibry loam. Summer temp., 60° to 90°; winter, 50° to 60°.

- D. campestris* (field). 10. Brazil. 1823.
- *litorea* (sea-shore). 4. Yellow. May. Brazil.
- *maritimum* (sea-side). 10. Brazil. 1823.

DIPSACUS. Teasel. (From *dipsao*, to thirst; referring to the cavity formed by the leaves clasping the stem holding

water. Nat. ord., *Teaselworts* [Dipsacaceæ]. Linn., 4-*Tetrandria* 1-*Monogynia*. Allied to *Scabious*.)

The only plant in this genus worthy of any remark is *D. fullo'num*, used by fullers in dressing cloth. For the cultivation of this plant, and the use of the heads by the fuller, see *Cottage Gardener*, v. 83. Hardy biennials. Seeds; common soil.

D. fe'ro's (fierce). 3. Purple. July. South Europe. 1818.

— *fullo'num* (fuller's). 6. Purple. July. Britain.

— *Gmeli'ni* (Gmelin's). 3. Blue. July. Caucasus. 1820.

— *ine'rmis* (unarmed). 4. White. Nepaul. 1823.

— *laciniat'us* (cut-leaved). 6. Purple. July. Germany. 1683.

— *pilo'sus* (shaggy). 4. White. August. Britain.

There are other species, but mere weeds.

DIPTERACA'NTHUS. (From *dis*, two, or double, and *akantha*, a spine; double-spined. Nat. ord., *Acanthads* [Acanthaceæ]. Linn., 14-*Didynamia* 2-*Angiospermia*. Allied to *Ruellia*.)

Stove evergreens. Cuttings in sandy soil, under a glass, not close; loam and peat. Summer temp., 60° to 85°; winter, 50° to 55°.

D. cilia'ta (hair-fringed). 2. Purple. July. E. Ind. 1806.

— *pat'ula* (spreading). 1½. Pale violet. July. E. Ind. 1774.

— *sca'ndens* (climbing). White.

DIPTERIX. Tonquin Bean. (From *dis*, double, and *pteria*, a wing; referring to the two upper segments of the calyx. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 17-*Diadelphia* 4-*Decandria*. Allied to *Dalbergia*.)

The Tonga, or Tonquin Bean, used by perfumers and snuff-makers, is the seed of this tree; hence the specific name. Stove evergreen tree. Cuttings in sand, under a glass, in moist heat, in April; rich, rough loam. Summer temp., 60° to 85°; winter, 50° to 55°.

D. odora'ta (sweet-scented). 60. Purple. Guiana. 1793.

DI'RCA. Leather-wood. (From *dirke*, a fountain; the plant growing in moist places. Nat. ord., *Daphnads* [Thymelaceæ]. Linn., 8-*Octandria* 1-*Monogynia*. Allied to *Daphne*.)

Hardy deciduous shrub. Layers in autumn; seeds in spring; sandy, peaty soil, and moist situation.

D. palu'stris (marsh). 6. Yellow. March. Virginia. 1750.

DI'SA. (Probably the native name. A genus of curious ground-orchids, natives of the Cape of Good Hope. Perhaps the most splendid is *D. grandiflo'ra*, a native of the top of Table Mountain, behind Cape Town, growing in a spongy kind of peat earth, on the margin of pools, in the

wet season; but it has hitherto resisted the skill of British cultivators.)

Greenhouse terrestrial orchids. Division; peat and loam, with a portion of sand. Summer temp., 60° to 80°; winter, 45° to 55°.

D. bracte'ata (bracted). ¾. Green. June. 1818.

— *chrysost'e'cha* (yellowish-spiked). 1. Yellow. June.

— *cornu'ta* (horned). 1½. Pale blue. June. 1805.

— *draco'nis* (dragon). 1. White, purple. June. 1823.

— *ferrugi'nea* (rusty). ¾. Brown. June. 1820.

— *flexu'sa* (zigzag). ¾. 1823.

— *graminifo'lia* (grass-leaved). 1½. Blue. 1825.

— *grandiflo'ra* (large-flowered). 1. Scarlet. July. 1825.

— *la'cera* (jagged). ¾. White. June. 1826.

— *macula'ta* (spotted). 1. Blue. June. 1816.

— *prasi'na* (leek-green-flowered). ¾. Green, red. June. 1815.

— *spatula'ta* (spatula-lipped). 1. Pale blue. June. 1805.

DISA'NDRA PROSTRA'TA we have united to *Sibthorpia*.

DISBUDDING is the removal, soon after they have burst into leaves, of such buds as, if allowed to grow into shoots, would be misplaced. Thus, buds protruded directly in the front of branches trained against walls, or fore-right shoots, as they are correctly termed, and buds that would produce shoots in places already sufficiently filled with branches, may be removed, or disbudded. The object is to strengthen the desirably-placed buds by thus confining to them the expenditure of sap. There is no better mode of aiding a weakly plant to a more vigorous and robust growth than judicious disbudding; but an over-robust and super-luxuriant tree had better be allowed to exhaust itself by a more profuse development of leaf-buds. By judicious disbudding, which should always be performed gradually, any winter pruning is almost rendered unnecessary, and in all instances is diminished.

DISCA'RIA. (From *diskos*, a disk; having a large fleshy disk. Nat. ord., *Rhamnads* [Rhamnaceæ]. Linn., 4-*Tetrandria* 1-*Monogynia*. Allied to *Colletia*.)

Greenhouse evergreen, from New Holland. Cuttings of half-ripe shoots in sand, under a glass, in April, kept rather close and hot; sandy loam and peat. Summer temp., 55° to 75°; winter, 40° to 45°.

D. austr'al'is (southern). Yellow. May. 1824.

DISCHI'DIA. (From *dis*, twice, and *schizo*, to split; referring to an obscure process in the construction of the flower. Nat. ord., *Asclepiads* [Asclepiadaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*. Nearly related to *Stephanotis* and *Hoya*.)

Stove evergreen trailers, with white flowers. Cuttings in sandy soil, in heat, any time in the spring and summer months; sandy loam. Summer temp., 60° to 80°; winter, 48° to 55°.

D. Bengale'nsis (Bengal). 1½. September. India. 1819.

— *nummularia* (moneywort-leaved). ½. August. Ambocyna.

DISEASES. The morbid affections to which the vegetable part of the creation are liable, are almost as numerous as those which render decrepid and destroy the animal tribes. The smut which ravages our corn crops; the mildew which destroys our peas; the curl infecting our potatoes; the ambury, or club root, to which our turnips and other species of cabbageworts are liable; the shanking, or ulceration, which attacks the stalks of our grapes, are only a few of the most commonly observed diseases to which the plants we cultivate are liable.

Disease is the negation of health; and as the health of a plant is the correct performance of its functions, disease may be defined to be an incorrect performance of the functions.

Such incorrectness arises from the vital energy declining in consequence of old age; from parasites; from wounds; from food improper either in quality or quantity; and from unfavourable temperature. If all these could be avoided, a plant might enjoy a vigorous immortality. Such, however, is not the lot of any organized being, and we note them chiefly to remind the gardener, that in proportion as he can save any plant from such unfavourable circumstances, will it enjoy health, and length of vigorous life.

DISE'MMA. (From *dis*, double, and *stemma*, a crown; referring to the double coronet, or rays. Nat. ord., *Passionworts* [*Passifloraceæ*]. Linn., 16-*Monadelphia* 2-*Pentandria*. Allied to *Tacsonia*.)

Greenhouse evergreen climbers, from New Holland. Cuttings of young shoots in summer, in sandy soil, under a glass, and in gentle bottom-heat; peat and loam. Winter temp., 45° to 50°.

D. adiantifolia (adiantum-leaved). 20. Orange. July. 1792.

— *aurantia* (orange). 15. White, red. July.

— *Herbertiana* (Herbert's). 30. Green, white. July. 1821.

DISOC'CTUS. (From *dis*, twice, *isos*, equal, and *cactus*; the divisions of the petals and sepals equal, and twice two, and the habit of a Cactus. Nat. ord., *Cactusworts* [*Cactaceæ*]. Linn., 12-*Icosandria* 1-*Monogynia*. Allied to *Rhipsalis*.)

This curious plant forms the connecting link between the *Epiphyllum* and *Rhipsalis* sections of the order, but in general appearance inclines much more to *Rhipsalis*. Stove evergreen. Cuttings after fresh growth has commenced; also seeds; turfy loam and leaf-mould, with sand and broken pots, to keep the compost open. Summer temp., 60° to 85°, with moisture; winter, 48° to 55°, kept rather dry.

D. bifor'mis (two-formed). 2½. Pink. Honduras. 1839.

DISPE'RIS. (From *dis*, double, and *pera*, a pouch; from the form of the perianth's outer segments.)

A genus of ground, or terrestrial orchids, natives of the Cape of Good Hope. Division; peat and loam, with a little sand and charcoal. Summer temp., 60° to 80°; winter, 45° to 50°.

D. Cape'nsis (Cape). ¾. Scarlet. July. 1816.

— *cucullata* (hooded). ¾. Purple. June. 1822.

— *secunda* (side-flowering). ¾. Purple. June. 1799.

DI'SPORUM. (From *dis*, double, and *poros*, a pore; application not stated. Nat. ord., *Melanths* [*Melanthaceæ*]. Linn., 6-*Hexandria* 1-*Monogynia*. Allied to *Uvularia*.)

Half-hardy herbaceous plants. Division of the roots in spring; also by seeds, sown under glass, in April; peat and loam, most of the first; require a cold pit in winter.

D. fulvum (tawny-flowered). 1½. Brown. October. China. 1801.

— *parviflorum* (small-flowered). 3. Yellow. July. Nepal. 1820.

DITTANY. *Dictamnus*.

DITTANY OF AMORGOS. *Ori'ganum Tournefortii*.

DITTANY OF CRETE. *Ori'ganum dictamnus*.

DODDER. *Cuscuta*.

DODECA'THEON. American Cowslip. (An ancient name applied by Pliny to a plant having a leaf like a lettuce. Nat. ord., *Primeworts* [*Primulaceæ*]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Cyclamen*.)

Hardy herbaceous perennials, from North America. Dividing the roots; sandy loam.

D. integrifolium (whole-leaved). ½. Light purple. April. 1829.

— *Mecidia* (*Mecidia*). 1. Light purple. May. 1744.

— *albiflorum* (white-flowered). 1. White. May. 1824.

— *elegans* (elegant). 1½. Rosy. May. 1827.

— *giganteum* (gigantic). 2. Lilac. May. 1819.

— *lilacinum* (lilac-flowered). 1. Lilac.

DOG-BERRY-TREE. *Co'rnus sanguinea*.

DOG BRAMBLE. *Ribes cynosbati*.

DOG'S BANE. *Apo'cynum*.

DOG'S-TOOTH VIOLET. *Erythro'nium*.

DOGWOOD. *Co'rnus*.

DO'LICHOS. (From *dolikos*, long; re-

ferring to the twining shoots. Nat. ord., *Leguminous Plants* [Fabacæ]. Linn., 17-*Diadelphia* 4-*Decandria*. Allied to Lablab.)

Generally weedy-looking things; *D. ligno'sus* is the one most favoured by gardeners. Seeds for all; cuttings of perennial species in sand, under glass, the stove ones requiring a little extra heat. The treatment common to the greenhouse and plant stove will suit them. All the flowering species are twiners.

D. Cape'nsis (Cape). 6. Yellow. July. Cape of Good Hope. 1823. Greenhouse evergreen.

— *Jacqui'nii* (Jacquin's). 8. White. July. S. Amer. 1800. Stove evergreen.

— *ligno'sus* (woody). 12. Purple. July. E. Ind. 1776. Greenhouse evergreen.

— *Lu'bia* (Lubia). 14. White, blue. July. Egypt. 1818. Hardy annual.

— *Sine'nsis* (Chinese). 6. Pale red. July. India. 1776. Hardy annual.

DOLIOCARPUS. (From *dolios*, deceitful, and *karpos*, a fruit; in reference to the juice being used as rouge. Nat. ord., *Dilleniads* [Dilleniaceæ]. Linn., 13-*Polyandria* 1-*Monogynia*. Allied to Delima.)

Stove evergreen climber. Cuttings of young firm shoots in sand, under a glass, and in bottom-heat; peat and loam, most of the former, and a little silver sand. Summer temp., 60° to 85°; winter, 50° to 55°.

D. Caline'a (Calinea). 10. Yellow. Guiana. 1822.

DOMBE'YA. (Named after *J. Dombey*, a French botanist. Nat. ord., *Byttneriads* [Byttneriaceæ]. Linn., 16-*Monadelphina* 7-*Dodecandria*. Allied to *Astrapea*.)

Stove evergreen trees. Cuttings of young shoots, getting firm, in sand, under a glass, and in bottom-heat, in April; sandy loam and turfy peat. Summer temp., 60° to 85°; winter, 60° to 55°.

D. cannabi'na (hemp). 10. White. March. Mauritius.

— *cordifo'lia* (heart-leaved). 16. Red. E. Ind. 1820.

— *erythro'xylon* (red-wooded). White. January. — *ferrugi'nea* (rusty-leaved). 15. White. Mauritius. 1815.

— *mol'lis* (soft-leaved). 30. Pink. March.

— *ova'ta* (egg-shaped). 16. White. Bourbon. 1822.

— *puncta'ta* (dotted-leaved). 16. White. Bourbon. 1820.

— *tilia'fo'lia* (lime-leaved). 15. White. Bourbon. 1820.

— *viburni'fo'ra* (Guelder-rose-flowered). 13. White. February. Comorin Islands. 1850.

DOO'DIA. (Named after *S. Doody*, a London apothecary and botanist. Nat. ord., *Ferns* [Polypodiaceæ]. Linn., 24-*Cryptogamia* 1-*Filices*.)

Greenhouse herbaceous Ferns. Spores brown, or yellowish-brown. Divisions, just before fresh growth commences, in spring; peat and loam. Summer temp., 35° to 75°; winter, 45° to 50°.

D. a'spera (rough-stalked). 3. June. N. S. Wales. 1808.

— *blechnoi'des* (blechnum-like). August. N. Holland. 1835.

— *cauda'ta* (tailed). 1. June. N. Holland. 1820.

— *Kunthia'na* (Kunth's). — *lunula'ta* (crescent-leaved). New Zealand. 1834.

— *me'dia* (intermediate). 2. June. N. Holland. 1823.

— *Virgi'nicæ* (Virginian). August. Virginia. 1774.

DORE'MA. (From *dorema*, a gift; referring to its product—gum ammoniac, but not Dioscorides's plant, which was some species of *Ferula*, supposed *F. orientalis*. Nat. ord., *Umbellifers* [Apiaceæ]. Linn., 5-*Pentandria* 2-*Digynia*. Allied to *Ferula*.)

The plant from which gum ammoniac is obtained. Hardy herbaceous plant. Seeds sown in a sheltered place at the end of April; common garden-soil.

D. ammoniacum (ammoniac). 7. White, yellow. June. Persia. 1831.

DORONICUM. Leopard's Bane. (From *doronigi*, the Arabic name. Nat. ord., *Composites* [Asteraceæ]. Linn., 19-*Syngenesia* 2-*Superflua*. Allied to *Arnica*.)

A genus of early-flowering, low, hardy, herbaceous plants for borders. *D. Colu'mnae* makes an excellent bed or large patch; will bear removing with a ball as soon as it has done flowering; transplant about the end of September to the flower-garden. Yellow flowers, except *D. Altaicum*. Dividing at the roots; common garden-soil; if dry and light all the better.

D. Altaicum (Altaic). 1. White. July. Siberia. 1783.

— *Austriacum* (Austrian). 1. May. Austria. 1816.

— *Caucasicum* (Caucasian). 1. July. Caucasus. 1815.

— *Colu'mnae* (Column's). 2. May. Italy. 1824.

— *cordifo'lium* (heart-leaved). Russia. 1838.

— *dentatum* (toothed-leaved). May. 1825.

— *macrophy'llum* (large-leaved). 2. July. Europe. 1828.

— *pardalia'nches* (panther-strangler). 2. May. Britain.

— *plantagin'eum* (plantain-leaved). 2. May. South Europe. 1570.

— *scorpioi'des* (scorpion-like). 1. May. Germany.

DORSTENIA. (Named after *T. Dorsten*, a German botanist. Nat. ord., *Morads* [Moraceæ]. Linn., 4-*Tetrandria* 1-*Monogynia*. Allied to the Fig and Mulberry.)

Little tufted stove herbaceous plants, cultivated for the curious way they produce their inconspicuous green flowers, on a flattened leaf-like receptacle. They are worth growing for covering rock-work, or side-edgings in a damp stove. Division, before active growth; also seeds in a hot-bed, in March or April; rich, sandy loam. Summer temp., 60° to 85°; winter, 50° to 55°.

D. cordifo'lia (heart-leaved). 4. June. W. Ind. 1822.

D. Houstoni (Houston's). ♀. June. S. Amer. 1747.

— *tubicina* (trumpet). June. Trinidad. 1817.

DORYANTHES. (From *dory*, a spear, and *anthos*, a flower; the flower-stem shoots up from twelve to twenty feet high, like the handle of a spear, bearing flowers on the top. Nat. ord., *Amaryllids* [*Amaryllidaceæ*]. Linn., 6-*Hexandria* 1-*Monogynia*. Allied to the American Aloe, but not with succulent leaves.)

This gigantic half-lily and half-palm looking plant, with its bundled fleshy roots, seems rather out of place among Amaryllids. This, with its fellows, *Littæa* and *Fourcroya*, can only find head-room in the loftiest conservatories. Greenhouse evergreen. Suckers and seeds at times; peat and rich loam. Summer temp., 60° to 80°; winter, 45° to 50°.

D. excelsa (lofty). 20. Cream. July. N. S. Wales. 1800.

DORYCNIUM. (From *dory*, a spear; adopted from Pliny, who applied the name to "a poisonous herb wherewith they poisoned arrow-heads, darts, &c." Nat. ord., *Leguminous Plants* [*Fabaceæ*]. Linn., 17-*Diadelphia* 4-*Decandria*. Allied to Lotus and Trifolium.)

Seeds in March; herbaceous ones also by division; common garden-soil.

HARDY HERBACEOUS.

D. herba-ceum (herbaceous). 1½. White. July. South Europe. 1802.

— *intermedium* (intermediate). White. June. Caucasus. 1836.

— *latifolium* (broad-leaved). 1½. White. July. Iberia. 1818.

HARDY EVERGREEN.

D. hirsutum (hairy). 3. Red, white. July. South Europe. 1683.

— *rectum* (upright). 2. Red. July. South Europe. 1640.

— *suffruticosum* (sub-shrubby). 1½. White. July. South Europe. 1640. Half-hardy.

— *tomentosum* (woolly). 3. Red, white. July. South Europe. 1817.

DORYOPTERIS. (From *dory*, a spear, and *pteris*, a fern; spear-leaved Fern [*Polypodiaceæ*]. Linn., 24-*Cryptogamia* 1-*Filices*. Allied to Pteris.)

Stove herbaceous Ferns, with yellowish-brown spores. Division, chiefly in spring; peat and loam. Summer temp., 60° to 80°; winter, 45° to 55°.

D. collina (hill). August. Brazil.

— *cordifolia* (heart-leaved).

— *hustata* (halbert-leaved). June. W. Ind. 1823.

— *palmata* (hand-shaped). 2. July. Caraccas. 1821.

— *sagittifolia* (arrow-head-leaved). ♀. July.

— *Wallichii* (Wallich's). E. Ind.

DOUBLE FLOWERS. Hybridizing, aided by cultivation, gives birth to these objects of the gardener's care. To the uninitiated it seems incredible that the double

moss rose should be a legitimate descendant from the briar; neither do the flowers of the Fair Maid of France appear less impossible derivatives from those of the *Ranunculus platanifolius*; nor bachelor's buttons from the common butter-cup; yet so they are. Double flowers, as they are properly called, are more correctly discriminated as the full flower, the multiplicate flower, and the proliferous flower.

The *full flower* is a flower with its petals augmented in number by the total transformation into them of its stamens and its pistils. One-petaled flowers rarely undergo this metamorphosis, but it is very common in those having many petals, as in the carnation, ranunculus, rose, and poppy. But this is not the only mode in which a flower becomes full, for in the columbine (*Aquilegia*) it is effected in three different ways, viz., by the multiplication of petals to the exclusion of the nectaries; by the multiplication of the nectaries to the exclusion of the petals; and by the multiplication of the nectaries whilst the usual petals remain. Radiated flowers, such as the sunflower, dahlia, anthemis, and others, become full by the multiplication of the florets of their rays to the exclusion of the florets of their disk. On the contrary, various species of the daisy, matricaria, &c., become full by the multiplication of the florets of the disk.

The *multiplicate flower* has its petals increased by the conversion of a portion of its stamens, or of its calyx. It occurs most frequently in polypetalous flowers. Linnaeus gives the only instances we know of the conversion of the calyx into petals, and these are to be observed in the pink (*Dianthus caryophyllus*), and a few of the alpine grasses.

A *proliferous flower* has another flower or a shoot produced from it, as in the variety of the daisy popularly known as the Hen-and-chickens. It occurs also more rarely in the ranunculus, pink, marigold, and hawkweed. A leafy shoot often appears in the bosom of the double-blossomed cherry, anemone, and rose.

A due supply of moisture, but rather less than the plant most delights in, when the production of seed is the desired object, a superabundant supply of decomposing organic matter to its roots, and an exposure to the greatest possible degree of sun-light, are the means successfully employed to promote excessive

development of the petals which characterize double flowers.

By these means a greater quantity of sap is supplied to the flower than the natural extent of the petals can elaborate; and those parts required for the extra elaboration are developed at the expense of those not demanded for the purpose.

In double flowers, as was observed by the late Sir J. E. Smith, the corolla is much more durable than in single ones of the same species, as anemones and poppies, because, as he conceived, in such double flowers the natural function not being performed, the vital principle of their corolla is not so soon exhausted. Advantage may be taken of this to prolong the duration of flowers by cutting away the pistils or stamens, whichever are least conspicuous, with a sharp pair of pointed scissors.

DOUCIN STOCK. *See* STOCK.

DOUGLA'SIA. (In memory of the unfortunate *D. Douglas*, botanical traveller in North West America. Nat. ord., *Primeworts* [*Primulacæ*]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Androsace*.)

An extremely rare, hardy, evergreen, alpine plant. Seeds; peat and loam; should be used as an alpine plant, and protected in winter; it will not bear sudden changes.

D. nivalis (snowy). $\frac{1}{2}$. Purple. June. Rocky Mountains. 1827.

DOVE FLOWER. *Peristëria*.

DRA'BA. (From *drabe*, acrid; referring to one of the universal characters of its Nat. ord., *Crucifers* [*Brassicacæ*]. Linn., 15-*Tetradynamia*. Connected, but not in close alliance, with *Aubretia*, *Alysum*, and *Cochlearia*.)

Hardy rock or alpine plants. Yellow-flowered, except where otherwise mentioned. Perennials, by dividing the roots; also with the annuals and biennials, by seeds in spring, and under a hand-light, in summer; peat and loam for the tenderest; sandy loam and dry situation for the hardiest. They make interesting pot-plants, treated as alpine; and that is the safest way to treat many of them.

ANNUALS.

D. gracilis (slender). $\frac{1}{2}$. June. N. Amer. 1827.
— *helica* (yellow). $\frac{1}{2}$. June. South Europe. 1820.
— *murælis* (wall). $\frac{1}{2}$. White. June. England.
— *nemorælis* (grove). $\frac{1}{2}$. June. Europe. 1759.

BIENNIALS.

D. aurea (golden). $\frac{1}{2}$. June. Denmark. 1820.
— *cineæa* (grey). $\frac{1}{2}$. White. July. Siberia. 1818.
— *confusa* (confused). $\frac{1}{2}$. White. July. North Europe.
— *Daurica* (Daurian). $\frac{1}{2}$. White. July. Dauria. 1824.
— *ineæna* (hoary). $\frac{1}{2}$. White. May. Britain. 20

HERBACEOUS PERENNIALS.

D. Aizoides (Aizoon-like). $\frac{1}{2}$. March. Wales.
— *Aizo'on* (Aizoon). $\frac{1}{2}$. May. Carinthia. 1823.
— *alpina* (alpine). $\frac{1}{2}$. April. Lapland. 1820.
— — *siliculis-pilosis* (hairy-podded). $\frac{1}{2}$. August. Greenland. 1820.
— *aspera* (rough). June. Siberia.
— *Austriaca* (Austrian). $\frac{1}{2}$. White. June. Austria. 1824.
— *brachystemon* (short-stamened). $\frac{1}{2}$. March. Switzerland. 1819.
— *Bruniaefolia* (*Brunia*-leaved). $\frac{1}{2}$. June. Caucasus. 1820.
— *bryoides* (*bryum*-like). $\frac{1}{2}$. March. Tauria. 1820.
— *ciliaris* (hair-fringed-leaved). $\frac{1}{2}$. March. Switzerland. 1731.
— *corymbosa* (corymbed). $\frac{1}{2}$. White. May. Baffin's Bay. 1823.
— *crassifolia* (thick-leaved). $\frac{1}{2}$. June. N. Amer. 1826.
— *cuspidata* (spine-point-leaved). $\frac{1}{2}$. March. Iberia. 1820.
— *dasyca'rpa* (hairy-fruited). White. May. Altai. 1837.
— *ericæfolia* (heath-leaved). $\frac{1}{2}$. June. Caucasus. 1821.
— *Fladnice'nsis* (*Fladniso*). $\frac{1}{2}$. White. June. Switzerland. 1819.
— *glacialis* (icy). $\frac{1}{2}$. June. Siberia. 1826.
— *Gmelini* (*Gmelin's*). $\frac{1}{2}$. June. Siberia. 1821.
— *grandiflora* (large-flowered). $\frac{1}{2}$. White. May. Altai. 1832.
— *Helveticæ* (Swiss). $\frac{1}{2}$. August. Switzerland. 1819.
— *hirta* (hairy). $\frac{1}{2}$. White. June. North Europe. 1823.
— *incolumpta* (rough). $\frac{1}{2}$. April. Caucasus. 1821.
— *Lapponica* (Lapland). $\frac{1}{2}$. White. April. Lapland. 1810.
— *lasioca'rpa* (woolly-fruited). $\frac{1}{2}$. White. May. 1820.
— *muricella* (small-prickly). $\frac{1}{2}$. White. June. Lapland. 1810.
— *nivalis* (snowy). $\frac{1}{2}$. White. June. Switzerland. 1824.
— *oblongata* (oblongate). $\frac{1}{2}$. White. May. Baffin's Bay. 1823.
— *pilosa* (soft-haired). $\frac{1}{2}$. White. June. Siberia. 1825.
— *repens* (creeping). $\frac{1}{2}$. June. Siberia. 1818.
— *rupestris* (rock). $\frac{1}{2}$. June. Scotland.
— *siliquosa* (large-podded). $\frac{1}{2}$. White. June. Caucasus. 1822.
— *stellata* (starry). $\frac{1}{2}$. White. June. Pyrenees. 1820.
— *stylaris* (long-styled).
— *tomentosa* (woolly). $\frac{1}{2}$. White. June. Switzerland. 1819.
— *tridentata* (three-toothed). 1. August. Russia. 1838.

DRA'ENA. (From *drakaina*, a female dragon; because, if this Dragon-tree is wounded, the milky juice on drying becomes a hard gum, having the same properties as the resinous substance called Dragon's-blood. Nat. ord., *Lilyworts* [*Liliacæ*]. Linn., 6-*Hexandria* 1-*Monogynia*.)

Evergreens, with white flowers, except *D. nutans*. Large pieces of the branches strike when put in strong bottom-heat; rich, fibry loam, well drained. Summer temp., 60° to 80°; winter, 45° to 55°.

GREENHOUSE.

- D. nodosa* (knotted). 4. 1820.
- nutans (nodding). 4. Brown. July. N. Holland. 1820.
- undulata (waved). 6. Cape of Good Hope. 1816.

STOVE.

- D. arboorea* (tree). 30. May. Sierra Leone. 1800.
- Brasiliensis (Brazilian). 5. Brazil. 1825.
- cernua (drooping). 10. May. Mauritius.
- draco (dragon). Common. 10. E. Ind. 1640.
- elliptica (elliptic-leaved). 2½. Yellow. March. Amboyna.
- ensifolia (sword-leaved). 4. 1800.
- ferrua (iron). 8. April. China. 1771.
- fragrans (sweet-scented). 6. April. Africa. 1768.
- interrupta (interrupted). 2. June. Sierra Leone. 1798.
- Leoneensis (Sierra Leone). 3. June. Sierra Leone. 1824.
- marginata (bordered). August. Madagascar.
- Mauritiania (Mauritian). 4. May. Mauritius. 1825.
- ovata (egg-shape-leaved). 2. August. Sierra Leone.
- purpurea (purple-leaved). 15. June. E. Ind. 1820.
- reflexa (bent-back-leaved). 4. June. Madagascar. 1819.
- salicifolia (willow-leaved).
- striata (streaked). 4. April. Cape of Good Hope. 1820.
- surculosa (twiggy). 4. July. Sierra Leone. 1821.
- terminalis (terminal). 10. June. E. Ind. 1820.
- tessellata (chequered). Madagascar. 1816.
- umbraculifera (umbrella-bearing). 10. Mauritius. 1788.

DRACOPHYLLUM. Dragon's Head. (From *drakon*, a dragon, and *kephale*, a head; referring to the gaping flower. Nat. ord., *Lipworts*, or *Labiates* [Lamiaceæ]. Linn., 14-*Didynamia* 1-*Gymnospermia*. Allied to *Nepeta*.)

Annuals, by seed in the open ground at the end of March; perennials, by seeds and divisions; the tender evergreens, by cuttings of young shoots under a hand-glass, in April or May; light, rich soil.

HARDY ANNUALS.

- D. canescens* (hoary). 2. Blue. July. Levant. 1711.
- Moldavicum (Moldavian). 2. Blue. July. Moldavia. 1596.
- albiflorum (white-flowered). 2. White. July. Moldavia. 1595.
- peregrinum (diffuse). ½. Purple. July. Siberia. 1759.
- thymiflorum (thyme-flowered). ½. Purple. July. Siberia. 1752.

GREENHOUSE EVERGREENS.

- D. Canariense* (Canary. *Balm of Gilead*). 3. Pale purple. August. Canaries. 1697.
- chamædrysoides (germander-like). ½. Blue. July. 1823. Trailer.
- origanoides (marjoram-like). ½. July. Siberia. 1829. Trailer.

HARDY PERENNIALS.

- D. Altaicæ* (Altaic). ½. Purple. July. Georgia. 1759.

- D. Argenteæ* (Argon). 1½. Blue. July. Siberia. 1822.
- Austrivicum (Austrian). 1. Blue. June. Austria. 1597.
- botryoides (botrys-like). ½. Purple. July. Siberia. 1822.
- Ibericum (Iberian). 1. Blue. July. Iberia. 1820.
- integrifolium (whole-leaved). Blue. July. Siberia. 1827.
- Mexicanum (Mexican). 2. Blue. July. Mexico. 1832.
- nutans (nodding). 1. Blue. July. Siberia. 1731.
- palmatum (hand-leaved). 1½. Purple. July. Siberia. 1815.
- parviflorum (small-flowered). ½. Blue. July. N. Amer. 1825.
- petatum (shield-leaved). 1½. Purple. July. Levant. 1711.
- pinna'tum (leafleted). Blue. June. Siberia. 1822.
- Ruyschianum (Ruysch's). 2. Blue. July. North Europe. 1699.
- Sibivicum (Siberian). 1. Blue. August. Siberia. 1760.

DRACONTIUM. Dragon. (From *drakon*, a dragon; referring to its spots and streaks being like those on serpents. Nat. ord., *Orontiacs* [Orontiaceæ]. Linn., 7-*Heptandria* 1-*Monogynia*. Allied to *Pothos* and *Orontium*.)

Stove evergreen creepers. Dividing the roots; fibry loam, and a little decayed dung and leaf-mould. Summer temp., 60° to 85°; winter, 48° to 55°.

- D. polyphyllum* (many-leaved). 2. May. India. 1769.

- spinosum* (prickly). 2. April. Ceylon. 1759.

DRACOPHYLLUM. (From *drakon*, a dragon, and *phyllon*, a leaf; referring to the long bracts, which resemble the young leaves of the Dragon-plant, *Dracæna dra'co*. Nat. ord., *Epacrids* [Epacridaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Sphenotoma* and *Richea*.)

Greenhouse evergreens, from New Holland. Cuttings of young wood, getting firm at the base, in April; peat and loam, both fibry, with a little silver sand. Temp., winter, 40° to 45°.

- D. capitatum* (headed). 1830.
- longifolium (long-leaved). 2. White. June. 1824.
- secundum (side-flowering). 2. White. June. 1823.

DRACOPSIS. (From *drakon*, a dragon, and *opsis*, appearance; referring to the rays, or florets. Nat. ord., *Composites* [Asteraceæ]. Linn., 19-*Syngenesia* 3-*Superflua*. Allied to *Rudbeckia*.)

Hardy annual. Seeds and divisions; open garden-soil.

- D. amplexicaulis* (stem-clasping). Yellow. July. Louisiana. 1793.

DRAGON. *Dracontium* and *A'rum dracontium*.

DRAGON'S-BLOOD. *Ca'lamus dra'co*.

DRAGON'S-HEAD. *Dracoccephalum*.

DRAGON-TREE. *Dracaena draco*.

DRAINING is drawing away the surface water, instead of allowing it to chill the land by evaporation, and further injuring the crops by an excessive supply of moisture. There is scarcely a garden existing that would not be benefited by under-draining. Every gardener knows the absolute necessity for a good drainage under his wall-trees and vines, but few gardeners ever think for a moment whether there is any escape and outfall for the water he has drained from immediate contact with the roots of the above-named favoured trees. Every garden should have drains cut, varying in depth from two to three feet, according to the depth of the soil, with an interval of twenty-four feet between the drains; twelve feet will not be too near in clayey soils. At the bottom of the drains should be placed one-inch pipes; these should be well puddled over six inches deep with clay, and then the earth returned. They should have an outfall into a ditch, at the least elevated side of the garden. By having the pipes with a bore no larger than an inch moles cannot creep in; and that bore is large enough to carry off all the water, after even the heaviest rains. For full directions we refer our readers to Donald's shilling volume, entitled *Land Drainage*.

DRAKE'A. (Named in honour of Miss Drake, botanical painter for the Botanical Register. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-*Gynandria* 1-*Monandria*. Allied to *Caleya*.)

The only species is an extremely curious ground-orchid, having one flower on the top of a slender stalk, eighteen inches long, "resembling an insect suspended in the air, and moving with every breeze." Greenhouse. Divisions; peat, loam, and rough sand.

D. elastica (elastic). Variegated. September. Swan River.

DRAWN. A plant is said to be *drawn* when it is unnaturally increased in length. This is usually by an access of heat and moisture, and a deficiency of air and light.

DREPANOCARPUS. The Sickie-pod. (From *drepanon*, sickle, and *carpos*, a fruit; referring to the shape of the seed-vessel. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 17-*Diadelphia* 4-*Decandria*.)

Stove evergreen. Cuttings of young shoots nearly ripe, with their leaves entire, in sand, under a glass, and in bottom-heat; peat and loam, both

fibry. Summer temp., 60° to 80°; winter, 50° to 55°.

D. lunatus (half-moon-capsuled). 12. White. S. Amer. 1792.

DRESSING. Putting the borders in order; also manuring strawberries, asparagus, and other permanent beds.

DRIFT SAND is the sand washed by floods into drifts or banks, whether by the sides of roads or streams.

DRILLING. Scarcely a crop in the garden should be sown broadcast, for drilling saves seed and labour; and although in some cases it takes more time to insert the seed in drills, yet this is more than compensated by the time saved during the after-culture, for the thinning and hoeing are greatly facilitated. (See BROADCAST.)

The distance apart appropriate for the drills for particular crops will be found under their respective titles; they are usually made with a hoe and line, but the *drill-rake* is often used. The teeth are set six inches apart, and are broad and coulter-formed. When the drills are required to be less than six inches apart the implement can be worked diagonally; but it may be made with teeth moveable to any desired space apart.

DRI'MIA. (From *drimys*, acid; referring to the juice of the bulbs. Nat. ord., *Lilyworts* [Liliaceæ]. Linn., 6-*Hexandria* 1-*Monogynia*. Allied to *Massonia*.)

Little greenhouse bulbous plants, from the Cape of Good Hope; elegant, though less showy than the *Ixias*. Offsets; peat, or leaf-mould, and sandy loam. Summer temp., 50° to 75°; winter, 35° to 45°; potted when beginning to grow, and until then kept dry after the withering of the leaf.

D. acuminata (pointed). ♀. Brown. August. 1829.

— *altissima* (tallest). 1½. White, green. August. 1791.

— *ciliaris* (hair-fringed). 1½. Purple, white. August. 1800.

— *elata* (tall). 2. Red, green. October. 1799.

— *lanceolata* (spear-leaved). ♀. Purple. September. 1800.

— *lanceolata* (spear-head-leaved). ♀. Yellow, green. September. 1774.

— *longipedunculata* (long-flower-stalked). Green, purple. September. 1800.

— *media* (intermediate). White. August. 1820.

— *purpureascens* (purplish). ♀. Purple. August. 1818.

— *pusilla* (little). ♀. Green. May. Cape of Good Hope. 1793.

— *undulata* (waved). ♀. Green-striped. May. 1819.

— *villosa* (long-haired). Green. August. 1826.

DRI'MYS. (From *drimys*, acid; referring to the "bitter tonic taste" of the bark, one of the characteristics of its

Nat. ord., *Magnoliads* [Magnoliaceæ]. Linn., 13-*Polyandria* 4-*Tetragynia*.)

The Winter Bark of commerce is that of *D. Winteri*, a good substitute for cinnamon. Greenhouse evergreen trees, with white flowers. Cuttings of half-ripe shoots in sand, under a glass, and, after standing a fortnight shaded from sun, transferred to a sweet bottom-heat; fibry peat and sandy, lumpy loam. Winter temp., 40° to 45°.

D. Chilensis (Chilian). 12. Chili. 1829.

— *Winteri* (Winter's). Magellan. 1827.

DRO'SERA. Sundew. (From *droseros*, dewy. Nat. ord., *Sundews* [Droseraceæ]. Linn., 5-*Pentandria* 5-*Pentagynia*.)

The Sundews are delicate herbaceous plants, chiefly inhabitants of marshes; the whole plant is thickly clothed with glandular hairs, giving them the appearance of being studded with dew-drops. We have often viewed *D. rotundifolia* with amazement, on the opposite side of a little pool, arrayed in hundreds of little stars, and sparkling beneath a midday's sun. Seeds, generally, and divisions; peat earth, above it fresh sphagnum moss, in which the tiny plant is to be fixed, and then the pot is to be set in a pan of water; when cultivated, they should all be indulged in the greenhouse.

D. acaulis (stemless). $\frac{1}{2}$. White. July. Cape of Good Hope. 1823.

— *Americana* (American). $\frac{1}{2}$. White. July. N. Amer. 1820.

— *Anglica* (English). $\frac{1}{2}$. White, red. July. England.

— *binata* (twin-leaved). $\frac{1}{2}$. White. July. N. Holland. 1821.

— *erythrorhiza* (scarlet-rooted). White. July. Swan River. 1843.

— *filiculis* (thready-stemmed). Rose. May. Swan River. 1841.

— *filiformis* (thread-form). $\frac{1}{2}$. Purple. July. North Jersey. 1811.

— *gigantea* (gigantic). White. July. Swan River.

— *linearis* (narrow-leaved). $\frac{1}{2}$. Purple. July. N. Amer. 1818.

— *longifolia* (long-leaved). $\frac{1}{2}$. White, red. July. Britain.

— *macrantha* (large-flowered). Rose. July. Swan River.

— *macrophylla* (large-leaved). White. July. Swan River. 1842.

— *pallida* (pale). White. July. Swan River. 1843.

— *pauciflora* (few-flowered). $\frac{1}{2}$. White. July. Cape of Good Hope. 1823.

— *rotundifolia* (round-leaved). $\frac{1}{2}$. White. July. Britain.

— *stolonifera* (creeping-rooted). White. July. Swan River.

DROPPWORT. *Spiraea filipendula* and *Potentilla filipendula*.

DRUMMONDIA. (Named after Thomas Drummond, who sacrificed his life in the cause of botany. Nat. ord., *Saxifragæ* [Saxifragaceæ]. Linn., 5-*Pentandria* 2-*Digynia*. Allied to *Mitella*.)

An alpine or rock-plant, from the Rocky Mountains. Unfortunately *Drummondia* must be cancelled; the plant was named *Mitellopsis* previously by Meisner. Hardy herbaceous perennial. Divi-

sions and seeds; light, sandy soil, in a dry place or rock-work.

D. mitelloides (mitella-like). $\frac{1}{2}$. Yellowish. July. Rocky Mountains. 1827.

DRYANDREA. (Named after *Dryander* a Swedish botanist. Nat. ord., *Proteads* [Proteaceæ]. Linn., 4-*Tetrandria* 1-*Monogynia*. Allied to *Banksia*.)

Greenhouse evergreen shrubs, from New Holland, with yellow flowers. Cuttings of firm side-shoots taken off in August, inserted in sand, under a bell-glass, shaded to keep the foliage from flagging, and in a fortnight or three weeks transferred to a mild bottom-heat; fibry peat and fibry loam, with a portion of sand, broken potsherds, and a few pieces of charcoal; pots particularly well drained. Winter temp., 38° to 45°.

D. arctotoides (arctotis-like). 1830.

— *armata* (armed). 3. 1803.

— *Baxteri* (Baxter's). 3. 1824.

— *bipinnatifida* (doubly-leafleted). 1840.

— *blechnifolia* (blechnum-leaved). $\frac{1}{2}$. 1824.

— *calophylla* (beautiful-leaved). 1830.

— *carduacea* (thistle-like). 3. April.

— *angustifolia* (narrow-leaved). 3. April.

— *cuneata* (wedge-leaved). 3. June. 1803.

— *brevifolia* (short-wedge-leaved). 3. June. 1803.

— *longifolia* (long-wedge-leaved). 3. June. 1803.

— *favoisa* (honey-combed). 1840.

— *floribunda* (many-flowered). 3. 1803.

— *foliolata* (leafleted). 1836.

— *formosa* (handsome). 4. 1803.

— *Fraseri* (Fraser's). 1840.

— *longifolia* (long-leaved). 2. 1803.

— *mucronulata* (small-sharp-pointed). 3. 1824.

— *nervosa* (large-nerved). 2. 1824.

— *nitida* (snowy-leaved). 2. 1805.

— *nobilis* (noble). 1840.

— *obtusata* (blunt-leaved). 2. 1803.

— *plumosa* (feathered). 3. 1803.

— *Proteoides* (Protea-like). 1840.

— *pteridifolia* (pteris-leaved). $\frac{1}{2}$. 1824.

— *stuposata* (heavy). 1840.

— *tenuifolia* (fine-leaved). 2. April. 1803.

DRYAS. (From *Dryades*, the goddesses of the woods, to whom the oak was sacred. The leaves of *D. octopetala*, a Scotch plant on which the genus was founded by Linnæus, resemble small oak-leaves; and he, in a playful mood, made Dryas the badge of Virgil's Dryades, after the manner of the Scottish clans. Nat. ord., *Roseworts* [Rosaceæ]. Linn., 12-*Icosandria* 3-*Polygynia*. Allied to *Coluria* and *Cowanina*.)

All the species but *D. Drummondii* have white flowers, blooming in July. Divisions and seeds in spring; cuttings under a hand-light in summer; a peat-border, or, still better, in pots, and protected during winter in a cold pit.

HARDY EVERGREENS.

D. intermedia (intermediate). $\frac{1}{2}$. N. Amer. 1832.

— *octopetala* (eight-petaled). $\frac{1}{2}$. Britain.

— *Americana* (American). $\frac{1}{2}$. N. Amer. 1800.

HARDY HERBACEOUS.

- D. decapetala* (ten-petaled). N. Amer. 1839.
 — *depressa* (depressed). $\frac{1}{2}$. Ireland.
 — *minor* (smaller). $\frac{1}{2}$. N. Amer.

HALF-HARDY EVERGREENS.

- D. Drummondii* (Drummond's). $\frac{1}{2}$. Yellow. N. Amer. 1828.
 — *integrifolia* (whole-leaved). $\frac{1}{2}$. Greenland. 1824.
 — *tene'lla* (delicate). $\frac{1}{2}$. Canada. 1820.

DRYMOGLO'SSUM. The Wood-tongue. (From *drymos*, a wood, and *glossum*, a tongue; alluding to the place of growth and form of the fronds. Allied to *Poly-podium*.) See **FERNS**.

Spores yellow. Division; peat and loam. Summer temp., 60° to 80°; winter, 48° to 55°.

- D. carnosum* (fleshy). Australia.
 — *lanceolata* (spear-head). June. India. 1843.
 — *piloselloides* (pilosella-like). June. E. Ind. 1823.
 — *spatulatum* (spatulate). E. Ind.

DRYMONIA. (From *drymonia*, woodland; their habitation. Nat. ord., *Gesneriæ* [Gesneraceæ]. Linn., 14-*Didymia* 2-*Angiospermia*. Allied to *Besleria*.)

Stove evergreen climbers. Cuttings in sandy soil, in bottom-heat; rich, sandy loam. Summer temp., 80° to 90°; winter, 50° to 55°.

- D. bicolor* (two-coloured). 6. Purple. W. Ind. 1806.
 — *punctata* (spotted-flowered). $\frac{1}{2}$. Yellow, violet. May. Guatimala.
 — *villo'sa* (shaggy). 14. White. May. Surinam.

DRYNARIA. (From *drys*, a tree; dwelling among trees.)

A large genus of stove Ferns, with brownish-yellow spores. Allied to *Dryostachyum*. Division; peat and loam. Summer temp., 60° to 80°; winter, 50° to 55°.

- D. albidosquama'ta* (white-scaled). June. Isle of Luzon.
 — *Billardierei* (La Billardièr's). 1. June. N. Holland. 1824.
 — *caspita'sa* (tufted). April. India. 1841.
 — *capitata* (small-headed). July. S. Amer. 1822.
 — *coriacea* (leathery). June. India. 1840.
 — *crownans* (crowned). June. W. Ind.
 — *crassifolia* (thick-leaved). August. W. Ind. 1823.
 — *cuspidiflora* (pointed-flowered). June. Isle of Luzon.
 — *diversifolia* (various-leaved). July. Australia.
 — *du'bia* (doubtful). June. Isle of Luzon.
 — *glau'ca* (milky-green). Isle of Luzon.
 — *hemionitidea* (spleenwort-like). 2. Yellow. March. E. Ind. 1843.
 — *Horsfieldii* (Horsfield's). Yellow. Java.
 — *irisoides* (iris-like). 3. June. E. Ind. 1824.
 — *juglandifolium* (juglans-leaved). 14. May. S. Amer. 1822.
 — *leiorhiza* (smooth-rooted). March. E. Ind.
 — *lomarioides* (lomaria-like). Isle of Luzon.
 — *longifrons* (long-fronded). Isle of Luzon.
 — *longipes* (long-stalked). E. Ind. 1823.
 — *longissima* (longest-leaved). Isle of Luzon.

- D. loriformis* (strap-like). March. E. Ind.
 — *neglecta* (neglected). Isle of Luzon.
 — *normalis* (normal). March. Nepal.
 — *palmita* (hand-shaped). Isle of Luzon.
 — *plantaginea* (plantain-like). June. E. Ind. 1842.
 — *propinqua* (allied). May. E. Ind.
 — *pustulata* (pimpled). 1. March. Manilla. 1840.
 — *quercifolia* (oak-leaved). 14. March. Isle of Luzon. 1824.
 — *rubida* (red). Isle of Luzon.
 — *rupe'stris* (rock). Isle of Luzon.
 — *sesquipedalis* (foot-and-a-half). May. Nepal.
 — *stenophylla* (narrow-leaved). March. Java.
 — *subfalca'ta* (rather-sickle-shape). Isle of Luzon.
 — *tenuilobris* (slender-thonged). Mindanao.
 — *undulata* (waved-leaved). Isle of Luzon.
 — *vulgaris* (common). March. W. Ind. 1816.
 — *Wallichii* (Wallich's). March. E. Ind.

DRYOBALANOPS. Camphor-tree. (From *drys*, a tree, and *ballo*, to flow; from the tree yielding much sap. Nat. ord., *Lindenbloss* [Tiliaceæ]. Linn., 13-*Polyandria* 1-*Monogynia*.)

A stove tree, which produces the chief of the natural camphor imported. We say natural camphor, because camphor is now manufactured from turpentine.

- D. camphora* (camphor). 100. Yellow. Sumatra.

DRYOPTERIS. (From *drys*, a tree, and *pteris*, a fern. A genus of stove Ferns. Allied to *Pteris*.)

Division; peat and loam. Summer temp., 60° to 80°; winter, 50° to 55°.

- D. sagittifolia* (arrow-leaved). Yellow. April. E. Ind.

DRYOSTACHYUM. (From *drys*, a tree, and *stachys*, a spike. A genus of Stove Ferns, with yellow spores. Allied to *Drynaria*.)

Divisions; peat and loam. Summer temp., 60° to 80°; winter, 50° to 55°.

- D. caudatum* (tailed). May. Celebes. 1842.
 — *pilosum* (hairy). May. Isle of Luzon. 1841.
 — *splendens* (shining). May. Isle of Luzon. 1842.

DRYPETES. (From *drypto*, to lacerate; being a spiny shrub. Nat. ord., *Spurgeoworts* [Euphorbiaceæ]. Linn., 22-*Diacea* 4-*Tetrandria*. Allied to *Sarcococca*.)

Stove evergreen shrub. Cuttings in sandy loam, under a glass, in heat; peat and loam, both fibry and sandy. Summer temp., 60° to 80°; winter, 50° to 55°.

- D. crocea* (copper-coloured). 6. June. W. Ind. 1820.

DRYPIS. (From *drypto*, to lacerate; leaves armed with spines. Nat. ord., *Cloveoworts* [Caryophyllaceæ]. Linn., 5-*Pentandria* 3-*Trigynia*. Allied to *Acanthophyllum*.)

Hardy evergreen. Seeds; cuttings under a hand-light in the early summer months; requires

a dry situation, and equal portions of loam, peat, and rough sand.

D. spinosa (prickly). 3. Pale blue. June. Italy. 1775.

DRY-STOVE is a hothouse devoted to the culture of such plants as require a high degree of heat, but a drier atmosphere than the tenants of the *Bark-stove*. Consequently, fermenting materials and open tanks of hot-water are inadmissible; but the sources of heat are either steam or hot-water pipes or flues. See STOVE.

DUBBING is a gardener's term for clipping. The *dubbings* of a hedge are the parts clipped off with the shears.

DUCK'S-FOOT. *Podophyllum*.

DUMA'SIA. (Named after M. Dumas, one of the editors of *Annales des Sciences Naturelles*. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 17-*Diadelphia* 4-*Dendradia*. Allied to *Clitoria*.)

Greenhouse evergreen twiners, from Nepaul, both introduced in 1824. Seeds sown in a hot-bed, in spring; cuttings of young shoots getting firm, under a glass, and in sand, in a little bottom-heat, in April; sandy peat and fibry loam. Summer temp., 55° to 75°; winter, 45° to 50°.

E. pubescens (downy). 6. Yellow. October. — *villosa* (long-haired). 6. Pale yellow. October.

DUMB-CANE. *Caladium Seguinum*.

DUMERILIA. (In honour of Constant Dumeril, a French naturalist. Nat. ord., *Compositæ* [Asteraceæ]. Linn., 19-*Syn-genesia* 1-*Æqualis*.)

Stove evergreen shrub. Cuttings in sandy soil, under a bell-glass; sandy loam. Summer temp., 60° to 80°; winter, 45° to 55°.

D. paniculata (panicked). 3. Purple. August. Columbia. 1825.

DUNG. Under this title our attention must be confined to the fæces and urines of animals, and that one most common compound, *stable-dung*.

Night-soil is the richest of these manures. It is composed of human fæces and urine, of which the constituents are as follows: *Fæces*.—Water, 73.3; vegetable and animal remains, 7; bile, 0.9; albumen 0.9; peculiar and extractive matter, 1.2; salts (carbonate of soda, common salt, sulphate of soda, ammonia-phosphate of magnesia, and phosphate of lime), 2.7; insoluble residue, 14.0. *Urine*.—Urate of ammonia, 4.298; sal-ammoniac, 0.459; sulphate of potash, 2.112; chloride of potassium, 3.674; chloride of sodium (common salt), 15.080; phosphate of soda, 4.267; phosphate of lime, 0.209; acetate of soda,

2.770; urea and colouring matter, 23.640; water and lactic acid, 47.511.

After stating the above analyses in his excellent work *On Fertilizers*, Mr. Cuthbert Johnson proceeds to observe, that the very chemical composition, therefore, of this compost would indicate the powerful fertilizing effects which it is proved to produce. The mass of easily soluble and decomposable animal matters and salts of ammonia with which it abounds, its phosphate of lime, its carbonate of soda, are all by themselves excellent fertilizers, and must afford a copious supply of food to plants.

The disagreeable smell may be destroyed by mixing it with quick-lime, or still better with either chloride or sulphate of lime; and if exposed to the atmosphere in thin layers in fine weather, it speedily dries, is easily pulverized, and in this state may be used in the same manner as rape-cake, and delivered into the furrow with the seed.

From the experiments of M. Schubler and others, the relative value of night-soil is as follows:—

“If a given quantity of the land sown without manure yields three times the seed employed, then the same quantity of land will produce five times the quantity sown when manured with old herb-age, putrid grass or leaves, garden stuff, &c.; seven times with cow-dung, nine times with pigeon's-dung, ten times with horse-dung, twelve times with human urine, twelve times with goat's-dung, twelve times with sheep's-dung, and fourteen times with human manure or bullock's blood. But if the land be of such quality as to produce without manure five times the sown quantity, then the horse-dung manure will yield fourteen, and human manure nineteen and two-thirds the sown quantity.”

Fowl-dung, if composed partly of that of the duck, which is a gross feeder, is nearly equal to guano. This and that of the pigeon contain much ammonia, and all abound in phosphate of lime, mixed with decomposing organic matters and uric acid, all highly valuable as fertilizers.

Stable or Farm-yard Dung is usually composed of the following matters: *Horse-urine*.—Water and mucus, 94; carbonate of lime, 1.1; carbonate of soda, 0.9; hippurate of soda, 2.4; chloride of potassium, 0.9; urea, 0.7. But besides the above, it contains common salt, phos-

phate of lime, and sulphate of soda. *Cow-urine*.—Water, 66; phosphate of lime, 3; chloride of potassium, and sal ammoniac, 15; sulphate of potash, 6; carbonate of potash and carbonate of ammonia, 4; urea, 4.

One thousand parts of dry wheat-straw being burnt, yielded M. Saussure forty-eight parts of ashes; the same quantity of the dry straw of barley yielded forty-two parts of ashes. The portion dissipated by the fire would be principally carbon (charcoal), carburetted hydrogen gas, and water; one hundred parts of these ashes are composed of—Various soluble salts, principally carbonate and sulphate of potash, $22\frac{1}{2}$; phosphate of lime (earthy salt of bones), $6\frac{1}{2}$; chalk (carbonate of lime), 1; silica (flint), $61\frac{1}{2}$; metallic oxide (principally iron), 1; loss, 7 4.5ths. The straw of barley contains the same ingredients, only in rather different proportions.

The solid excrements of a horse fed on hay, oats, and straw, contain, according to the analysis of M. Zierl, in 1000 parts. Water, 698; pieromel and salts, 20; bilious and extractive matter, 17; green matter, albumen, mucus, &c., 63; vegetable fibre and remains of food, 202.

These, when burnt, yielded to the same chemist sixty parts by weight of ashes, which were composed of—Carbonate, sulphate, and muriate of soda, 5; carbonate and phosphate of lime, 9; silica, 46. —*Jour. Roy. Agr. Soc.*, vol. 1, p. 489.

There have been many arguments and much difference of opinion among cultivators with regard to the advantage of employing dung in a fresh or in a putrid state, and, as is too often the case, both parties have run into extremes—the one side contending for the propriety of employing it quite fresh from the farm-yard, the other contending that it cannot well be too decayed.

The mode employed by Lord Leicester is the medium between these equally erroneous extremes. He found that the employment of the fresh dung certainly made the dung go much farther, but then a multitude of the seeds of various weeds were carried on to the land along with the manure. He has, therefore, since used his compost when only in a half-putrefied state (called short dung by farmers), and hence the seeds are destroyed by the effects of the putrefaction, and the dung still

extends much farther than if suffered to remain until quite putrefied. Putrefaction cannot go on without the presence of moisture. Where water is entirely absent, there can be no putrefaction; and hence many farmers have adopted the practice of pumping the drainage of their farm-yards over their dung-heaps; others invariably place them in a low, damp situation. This liquid portion cannot be too highly valued by the cultivator. The soil where a dunghill has lain in a field is always distinguished by a rank luxuriance in the succeeding crop, even if the earth beneath to the depth of six inches is removed and spread with the dunghill.

Guano.—This now celebrated manure has been known as the chief fertilizer employed by the Peruvians, almost as long as that part of the New World has been recognised by geographers. Its name, in the language of that country, signifies the manure; and it merits such distinction, as being one of the most powerful assistants to vegetation which can be applied to the soil. Guano is not peculiar to Peru, but is found in immense beds upon many rocks and islands of the Atlantic, being the excrements of the marine birds frequenting those ocean solitudes. It has been lately analyzed by Dr. Ure, who reports it as composed of the following proportional constituents: Azotized organic matter, including urate of ammonia, and capable of affording from 8 to 17 per cent. of ammonia by slow decomposition in the soil, 50.0; water, 11.0; phosphate of lime, 25.0; ammonia, phosphate of magnesia, phosphate of ammonia, and oxalate of ammonia, containing from 4 to 9 per cent. of ammonia, 13.0; siliceous matter, 1.0.

This analysis explains the source from whence failure has been derived to many who have tried it. It is the most violently stimulating of all the known natural manures, and they have applied it too abundantly. This is shown by the experiments of Mr. Maund. When applied to *Strawberries* once a week in a liquid state (four ounces to a gallon), it made them very vigorous and productive; but sprinkled upon some young seedlings of the same fruit, it killed them. Two ounces per yard (five cwt. per acre), were sprinkled over *Onions*, and they doubled the untreated in size. *Potatoes*, manured with one ounce and a half per yard, were

rendered much more luxuriant than others having no guano. *Brussels Sprouts* were half destroyed by being planted in immediate contact with nine parts earth and one part guano. *Geraniums* were greatly injured by liquid-manure of guano (four ounces per gallon), but "plants of various sorts, in pots, watered only with guano-water, half an ounce to a gallon, have flourished astonishingly; none have failed. These are lessons which cannot be mistaken."—*Auctorium*, 223. Mr. Rendle and other persons record, as the result of dearly-purchased experience, that where guano has failed to be beneficial, or has been injurious, it has been applied in quantities too powerful for the plants to bear. In a liquid state, *half an ounce per gallon*, and given to growing plants once a week, it never fails to be productive of vigour. When sown as a top-dressing, it should be mixed with five times its weight of dry earth, ashes, &c., and then scattered as thinly as possible. When used as a top-dressing for a flower-pot, a small pinch between the thumb and two fingers will be sufficient.

Cow-dung, for potting purposes, should be collected whilst fresh, kept under a dry shed, be frequently turned over, and used when in a dry, loose condition. Two years' old dung is best.

DURA'NTA. (Named after *C. Durantes*, a physician and botanist. Nat. ord., *Verbenas* [Verbenacæ]. Linn., 14-*Didynamia* 2-*Angiospermia*.)

Stove evergreen shrubs, with blue flowers. Cuttings in sand, under a bell-glass, in bottom-heat; loam and peat. Summer temp., 60° to 80°; winter, 45° to 55°.

D. argentea (silvery). 6. E. Ind. 1824.
— *Ellis'sia* (Ellis's). 6. August. W. Ind. 1739.
— *inermis* (unarmed). 6. August. S. Amer. 1739.

— *macrocarpa* (large-fruited). 6. W. Ind. 1818.
— *Mutisii* (Mutis's). 6. W. Ind. 1820.
— *Plumieri* (Plumier's). 15. October. S. Amer. 1733.

— *Xalapensis* (Xalapa). 6. Mexico. 1822.

DURIO. (From *Duryon*, the Malay name of the fruit, "one of the most delicious productions of nature." Nat. ord., *Sterculiads* [Sterculiacæ]. Linn., 18-*Polyadelphia* 1-*Decandria*. Allied to *Cheirostemon*.)

In a putrid state the fruit is used as a bait to trap the civet-cat: hence the specific name. Stove evergreen tree. Cuttings of firm young shoots in spring, in sand, under a glass, and in bottom-heat; peat, loam, and leaf-mould. Summer temp., 60° to 80°; winter, 50° to 55°.

D. zibethinus (civet). 60. White. E. Ind. 1825.

DUVA'LIA. Applied by Haworth to a section of *Stapelia*; but the name was pre-occupied by Nees von Esenbeck for a genus of Liverworts, of which no account is taken in this work. The species will be found under *STAPE'LIA*.

DUVAU'A. (After *Duvau*, a French botanist. Nat. ord., *Terebinths* or *Anacards* [Anacardiaceæ]. Linn., 21-*Monœcia* 7-*Octandria*. Allied to *Schinus*.)

Fine evergreens, requiring greenhouse protection north of London.

D. denta'ta (toothed). 20. White. June.

Owyhee. 1795.

— *dependens* (hanging). 20. White. Chili. 1790.

— *latifo'lia* (broad-leaved). 20. Yellowish. June. Chili. 1830.

— *longifo'lia* (long-leaved). 3. Pale yellow. June. Buenos Ayres. 1835.

— *ova'ta* (egg-leaved). 6. Greenish. Chili. 1824.

DWARF FAN-PALM. *Chame'rops hu'milis*. **DWARF STANDARD** is a fruit-tree on a very short stem, with its branches untrained.

DY'CKIA. (Named in honour of *Prince Salm-Dyck*, a German author of a splendid work on Succulents. Nat. ord., *Bromelworts* [Bromeliacæ]. Linn., 6-*Hexandria* 3-*Trigynia*. Allied in appearance to a small *Pitcairnia*.)

Like a pine-apple plant in miniature; usually grown with small greenhouse succulents. Suckers; loam and peat, with lime-rubbish, and well drained. Summer temp., 55° to 75°; winter, 38° to 45°.

D. altis'sima (tallest). Orange. September. Buenos Ayres.

— *rariflo'ra* (scattered-flowered). 2. Orange. June. Brazil. 1832.

DYER'S GREEN-WEED. *Geni'sta tinctoria*.

DYSOPHY'LLA. (From *dysodes*, fetid, and *phyllon*, a leaf; referring to the strong peppermint-like smell of the leaves. Nat. ord., *Lipworts* or *Labiates* [Lamiacæ]. Linn., 14-*Didynamia* 1-*Gymnospermia*. Allied to *Mint*.)

Division of the roots, just as fresh growth is commencing, in spring; common, sandy soil.

D. pu'mila (dwarf). $\frac{1}{2}$. Purple. August. Nepaul. 1826. Hardy herbaceous.

— *quadrifo'lia* (four-leaved). 2. Purple. July. Nepaul. 1820. Greenhouse evergreen.

— *stella'ta* (starry-flowered). 1. Purple. India. 1816. Greenhouse herbaceous.

— *verticilla'ta* (whorled). Lilac. Nepaul. 1828. Greenhouse herbaceous.

E.

EARI'NA. (From *earinos*, the spring, the time of their blooming. Nat. ord., *Orchids* [Orchidacæ]. Linn., 20-*Gy-*

nandria 1-*Monandria*. Allied to *Pholidota*.)

Stove orchids, from New Zealand. Division of the plants when fresh growth is commencing; sphagnum-moss and fibry peat, in which the roots are fixed above the surface of a pot, or in a shallow basket, and suspended from the roof. Summer temp., 60° to 85°, with moisture; winter, 50° to 60°, and rather dry.

E. mucronata (sharp-pointed). White. May.

1845.

— *suaveolens* (sweet-scented). White. May.

1843.

EARTH. Every cultivated soil is mainly composed of four earths in various proportions:—Silica, or pure flint; alumina, or pure clay; lime, combined with carbonic acid in the state of chalk; and magnesia. *See* SOIL.

EARTHING-UP, or drawing the soil in a ridge to the stems of plants, is beneficial to those fibrous-rooted, by reducing the distance from the surface of the extremities of the plant's roots; by inducing the production of rootlets from the stem; and sheltering the winter standing crops, for the closer the leaves of these are to the earth the less is the reduction of heat from the latter, either by radiation or contact with the colder air; but to tuberous-rooted plants, as the potato, it is detrimental. In our experiments, it has, on an average, reduced the produce one-fourth.

EARTH-NUT. *A'rachis*.

EARWIG. (*Forficula auricularis*.) This destroyer of the peach, apricot, plum, dahlia, pink, and carnation, commits its ravages only at night, retiring during the day to any convenient shelter in the vicinity of its prey. Advantage must be taken of this habit, and if small garden-pots with a little moss within be inverted upon a stick, and pieces of the dry hollow stem of the sunflower, or Jerusalem artichoke, be placed in the neighbourhood of the fruits and flowers enumerated, many of the insects will resort thither, and may be shaken out and destroyed. As earwigs are winged insects, it is useless to guard the stems of plants in any mode.

E'BNUS. The following species have been separated from *Anthyllis* by some botanists, to make this genus; but they should be reunited to it. *See* ANTHYLLIS.

E. Cretica (Cretan). 1½. Pink. June. Candia.

1737.

— *pinnata* (leafleted). ½. Pink. June. Barbary.

1786.

— *Sibthorpii* (Sibthorp's). Pink. July. Greece.

1826.

E'BONY. *Diospy'ros e'benum*.

ECASTAPHYLLUM. *See* PTEROCARPUS.

ECREMOCARPUS. (From *ekkremes*, pendent, and *karpos*, fruit; position of the seed-pods. Nat. ord., *Bignoniads* [*Bignoniaceæ*]. Linn., 14-*Didynamia* 2-*Angiospermia*. Syn., *Calempelis*.)

Half-hardy evergreen climbers, with orange flowers. Seeds sown on heat, in February, will bloom out of doors during the summer; cuttings taken off in August, and kept in a cold frame during the winter, will bloom better. In sheltered places the fleshy roots will remain safe in the ground during the winter; but in most places it is safest to protect them from frost and wet, or take them up and keep them from frost, and plant again in May; any light, fertile soil.

E. longiflorus (long-flowered). 6. July. Peru.

1825.

— *scabra* (rough). 6. July. Chili. 1824.

ECHIA'NDIA. (Derivation unknown.)

A rare *Lilywort* [*Liliaceæ*]. Linn., 6-*Hexandria* 1-*Monogynia*. Allied to *Anthericum*.)

Division, and, it is believed, by seeds; peat and loam; greenhouse and cold pit culture.

E. ternstrofia (three-flowered). Golden. July.

Mexico. 1837.

ECHEVE'RIA. (After *M. Echeveri*, a botanical draughtsman. Nat. ord., *House-leeks* [*Crassulaceæ*]. Linn., 10-*Decandria* 4-*Pentagynia*. Allied to *Sedum*.)

Cuttings, chiefly in spring, that the plants may be established during summer; the base of the cutting should be dried for several days, though the leaves are kept green by shading and moisture, before inserting them in sandy soil; a bell-glass, if not kept close, will do them good, and also a little bottom-heat; sandy loam, peat, and lime-rubbish. Winter temp., 40° to 45°, and kept almost dry.

GREENHOUSE EVERGREENS.

E. acutifolia (pointed-leaved). 1. Scarlet, yellow. April. Mexico. 1841.

— *bracteolata* (small-bracted). Red, yellow. Caraccas. 1840.

— *cæspitosa* (tufty). 1. Yellow. July. California. 1796.

— *coccinea* (scarlet-flowered). 2. Scarlet. October. Mexico. 1816.

— *farinosa* (mealy). Pale yellow. California.

— *gibbiflora* (swollen-flowered). 2. Yellow, pink. September. Mexico. 1826.

— *grandifolia* (large-leaved). 2. Orange. October. Mexico. 1828.

— *lutea* (loose). Yellow. California. 1847.

— *pulverulenta* (powdery). White, red. September. Mexico. 1840.

— *retusa* (blunt-leaved). 1. Crimson, yellow. November. Mexico. 1846.

— *rosea* (rosy). 1. Rose, yellow. September. Brazil. 1840.

— *Scheerii* (Scheer's). 1½. Pink, yellow. November. Mexico. 1842.

STOVE EVERGREENS.

E. helrida (dingy-leaved). 1. Scarlet. July. Mexico. 1830.

- E. racemosa* (racemed). 2. Crimson. October. Mexico. 1836.
 — *secundata* (one-sided). Scarlet. June. Mexico. 1837.

ECHINA'CEA. (From *echinos*, a hedgehog; referring to the involucre, or scaly covering of composite flowers. Nat. ord., *Composites* [Asteraceæ]. Linn., 19-Syngenesia 2-Superflua. Allied to Rudbeckia.)

Hardy herbaceous perennials. Division and seeds in spring; common or sandy soil.

- E. Dicksoni* (Dickson's). 1. Lilac. August. Mexico.
 — *du'bia* (doubtful). 4. Lilac. September. Mexico. 1837.
 — *heterophylla* (various-leaved). 1½. Purple. October. Mexico. 1829.
 — *napifolia* (rape-leaved). 2. Red. July. North Spain. 1824.
 — *purpurea* (purple-flowered). 4. Red. September. N. Amer. 1699.
 — *serotina* (late-flowering). 3. Red. September. N. Amer. 1816.

ECHINOCA'CTUS. (From *echinos*, hedgehog, and *cactus*. Nat. ord., *Indian Figs* [Cactaceæ]. Linn., 12-Icosandria 1-Monogynia.)

Like the section *Mammillaria*, this of *Melocactis* is encumbered by one-half too many names of species, founded on trifling variations, peculiar either to different ages of the same plants, or to accidental forms from seeds. For species and culture, see *CA'CTUS*.

ECHINOPS. Globe Thistle. (From *echinos*, hedgehog, and *opsis*, like; referring to the spiny scales of the involucre, or covering of composite flowers. Nat. ord., *Composites* [Asteraceæ]. Linn., 19-Syngenesia 5-Segregata. Allied to *Gazania*.)

Biennials, chiefly by seeds in April. Perennials, by division in March; common soil.

HARDY BIENNIALS.

- E. Barma'ticus a'lbus* (Hungarian white). White. Hungary. 1832.
 — *Gmelin'i* (Gmelin's). White, blue. 1835.
 — *humilis* (humble). 1½. Blue. June. Caucasus. 1816.
 — *lanuginosus* (woolly). 2. Blue. July. Levant. 1736.
 — *platylepis* (broad-scaled). September. 1835.
 — *pungens* (pungent). Russia. 1835.
 — *Tauricus* (Taurian). 4. Blue. August. Tauria. 1816.
 — *Tournefortii* (Tournefort's). Caucasus. 1835.

HARDY PERENNIALS.

- E. cristata* (crested). Cream, white. July. Bolivia.
 — *Dahuricus* (Dahurian). 3. Blue. August. Dauria. 1828.
 — *exaltatus* (lofty). 6. White. July. Austria. 1817.
 — *glaberrimus* (most smooth). Blue. August. Sinai. 1830.
 — *paniculatus* (panicled). 6. Blue. July. Spain. 1815.
 — *Persicus* (Persian). White. August. Persia. 1821.

- E. Ritro* (Ritro). 3. Blue. July. Europe. 1570.
 — *Ruthenicus* (Russian). 3. Blue. July. Russia. 1816.
 — *spinosus* (spiny-headed). 4. White. July. Egypt. 1597.
 — *strictus* (erect). 3. Pale blue. July. Europe. 1830.
 — *tenuifolius* (fine-leaved). 2. Blue. August. Russia. 1820.
 — *virgatus* (twiggy). 2. Blue. June. South Europe. 1820.

ECHINO'PSIS. (From *echinos*, hedgehog, and *opsis*, like; referring to the spines which clothe its globular stem. Nat. ord., *Indian Figs* [Cactaceæ]. Linn., 12-Icosandria 1-Monogynia. Allied to *Echinocactus*.)

Stove Cactuses. Light loam, a little leaf-mould, and a few lumps of lime-rubbish, and well drained. Water sparingly in winter, and air to be kept dry. Winter, night, 50°; day, 80°. Summer, night, 65°; day, 90°.

- E. campylacantha* (curved-spined). 1. Pink. May. Andes. 1851.
 — *cristata* (crested). ½. Purple. May. Bolivia. 1846. There is a white-flowered variety.

ECHI'TES. (From *echis*, a viper; referring to the snake-like coils of the twining shoots. Nat. ord., *Dogbanes* [Apocynaceæ]. Linn., 5-Pentandria 1-Monogynia.)

Nearly all evergreen climbers. Cuttings in sand, in bottom-heat, in spring; lumpy loam and peat. Summer temp., for stove species, 60° to 80°; winter, 48° to 60°. Others, usual greenhouse temperatures.

GREENHOUSE.

- E. bispinosa* (twin-spined). 1. Pink. September. Cape of Good Hope. 1795. Under-shrub.
 — *difformis* (two-formed). 8. Pale yellow. July. Carolina. 1806.

STOVE.

- E. antidysenterica* (antidysenteric). Pink. E. Ind. 1821.
 — *a'tro-purpurea* (dark purple). Brown, purple. July. Brazil. 1814.
 — *bisfo'ra* (twin-flowered). 20. White. July. W. Ind. 1793.
 — *caryophyllata* (clove-leaved). 6. Pale yellow. October. E. Ind. 1812.
 — *cymosa* (cymosed). 10. Julr. E. Ind. 1828.
 — *Domingensis* (St. Domingo). 10. Yellow. June. W. Ind. 1820.
 — *Franciscea* (River Francisco). Rose, green. September. Brazil. 1845.
 — *frutescens* (shrubby). 10. E. Ind. 1816.
 — *grandiflora* (large-flowered). 8. Pink. E. Ind. 1823.
 — *Heynii* (Heynes's). 5. Yellow. June. E. Ind. 1818.
 — *hirsuta* (hairy). 10. Yellow, rose. September. Brazil. 1843.
 — *longiflora* (long-flowered). 6. White. June. Brazil. 1816.
 — *Malabarica* (Malabar). 6. Red. June. Malabar. 1822.
 — *paniculata* (panicled). 10. Yellow. July. S. Amer. 1823.

- E. peltata* (shield-leaved). 10. Trinidad. 1826.
 — *reticulata* (netted). 6. Yellow. July. E. Ind. 1818.
 — *splendens* (shining). White, rose. September. Brazil. 1841.
 — *Richardii* (Richard's). 3. Yellow. July. Guiana. 1824.
 — *rubricaulis* (red-stemmed). 6. Yellow. July. Guiana. 1824.
 — *stellaris* (star-eyed-coral-leafed). 10. Rose, yellow. July. Rio Janeiro.
 — *suberecta* (slightly-bent. *Savannah-flower*). 10. Yellow. July. Jamaica. 1759.
 — *tortosa* (twisted). 10. Yellow. July. Jamaica. 1778.
 — *umbellata* (umbelled). 15. Yellow. July. Jamaica. 1733.

E'CHUM. Viper's Bugloss. (From *echis*, a viper; seeds like the viper's head. Nat. ord., *Borageworts* [*Boraginaceæ*]. Linn., 5 *Pentandria* 1-*Monogynia*. Allied to *Anchusa*.)

Annuals and biennials, by seed in common garden-soil, in March; evergreen shrubs, also, by seeds, sown in spring, in a slight hotbed; by layering the young shoots in summer; and cuttings in sandy soil of firm young shoots, in April or May, under a bell-glass, but not kept very close, and receiving a little bottom-heat; peat and loam. Winter temp., 40° to 45°.

HARDY ANNUALS.

- E. angustifolium* (narrow-leaved). Bluish. July. Spain. 1826.
 — *arenarium* (sand-inhabiting). Purple. July. Calabria. 1826.
 — *calycinum* (large-calyled). Blue, yellow. July. South Europe. 1829.
 — *macranthum* (large-flowered). 1. Violet. July. Barbary. 1818.
 — *Simsii* (Sims's). Red, blue. August. South Europe. 1816.

HARDY BIENNIALS.

- E. amœnum* (agreeable). Blue. July. Caucasus. 1826.
 — *asperinum* (very rough). Blue. July. Caucasus. 1826.
 — *Dahuricum* (Dahurian). Blue. July. Dahuria. 1827.
 — *Italicum* (Italian). 4. White. July. Jersey.
 — *Sibthorpii* (Sibthorp's). 1. Red. June. Europe. 1824.
 — *tenue* (slender). 1. Blue. July. Sicily. 1824.
 — *tuberculatum* (pimpled). 1. Violet. August. Spain. 1820.
 — *violaceum* (violet-flowered). 3. Blue. June. Austria. 1658.
 — *vulgaris flore-albo* (common-white-flowered). 1. White. July. Britain.

HERBACEOUS PERENNIALS.

- E. caudatum* (tailed). 1. Red. July. Cape of Good Hope. 1819. Greenhouse.
 — *Lagascænum* (Lagascæ's). Lilac. July. Spain. 1826. Hardy.
 — *Mertensii* (Merten's). 1½. Blue. June. Spain. 1824. Hardy.
 — *prostratum* (prostrate). 1. Red. July. Egypt. 1825. Hardy.
 — *spicatum* (spiked-dwarf). ½. White. July. Cape of Good Hope. 1791. Greenhouse.

GREENHOUSE EVERGREENS.

- E. coccineum* (prickly). 4. White. June. Canaries. 1815.

- E. ambiguum* (doubtful). 3. White, red. July. Canaries. 1820.
 — *argentæum* (silvery). 3. Blue. June. Cape of Good Hope. 1789.
 — *bifrons* (two-faced). 3. White, red. June. Canaries. 1820.
 — *brachyanthum* (short-flowered). 1½. White. June. Cape of Good Hope. 1819.
 — *caudicans* (whitish). 3. Blue. June. Madeira. 1777.
 — *capitatum* (headed). 2. Red. June. Cape of Good Hope. 1819.
 — *cynoglossoides* (bugloss-like). 3. Blue. July. Canaries. 1816.
 — *densiflorum* (thickly-flowered). 2. Blue. June. Canaries. 1820.
 — *fastuosum* (proud). 4. Purple. April. Canaries. 1779.
 — *ferocissimum* (fiercest-stalked). 6. Blue. June. Madeira. 1794.
 — *foliosum* (leafy). 3. White. July. Canaries. 1815.
 — *fruticosum* (shrubby). 3. Pink. May. Cape of Good Hope. 1759.
 — *giganteum* (gigantic). 10. White. June. Canaries. 1779.
 — *glabrum* (smooth). 2. White. May. Cape of Good Hope. 1791.
 — *glaucophyllum* (milky-green-leaved). 2. Violet. May. Cape of Good Hope. 1792.
 — *grandiflorum* (large-flowered). 3. Pink. June. Madeira. 1787.
 — *hispidum* (bristly). 2. White. June. Cape of Good Hope. 1818.
 — *incanum* (hoary). Blue. June. Cape of Good Hope. 1816.
 — *lavigatum* (smooth-stalked). 2. Blue. July. Cape of Good Hope. 1774.
 — *lasiophyllum* (hairy-leaved). 2. White. May. Cape of Good Hope. 1819.
 — *lineatum* (lined). 2. White. July. Canaries. 1815.
 — *longiflorum* (long-flowered). 3. Blue. July. Cape of Good Hope. 1806.
 — *macrophyllum* (large-leaved). 3. Blue. July. Canaries. 1823.
 — *molle* (soft). 6. White. June. Teneriffe. 1820.
 — *nerosum* (nerved). 4. Purple. July. Madeira. 1777.
 — *paniculatum* (panicled). 3. White. July. Cape of Good Hope. 1815.
 — *petraeum* (rock). 2. Blue. May. Dalmatia. 1843. Hardy.
 — *pyramidalium* (pyramidal). 3. Blue. July. Cape of Good Hope. 1820.
 — *scabrum* (rough). 2. Purple. Blue. July. Cape of Good Hope. 1820.
 — *simplex* (simple). 1. White. June. Teneriffe. 1820.
 — *sphaerocephalon* (round-headed). White. July. Cape of Good Hope. 1824.
 — *strictum* (erect). 3. Blue. June. Canaries. 1779.
 — *strigosum* (stiff-haired). 2. Violet. August. Cape of Good Hope. 1821.
 — *Swartzii* (Swartz's). Blue. June. Cape of Good Hope. 1816.
 — *verrucosum* (warted). 3. White. July. Cape of Good Hope. 1822.
 — *virescens* (greenish). 2. Bluish. July. Canaries. 1820.

EDGING. The material used for dividing beds and borders from the paths. For the kitchen-garden, and all other

places where neatness only need be considered, slates set edgeways form the best edging. In peaty, or any light soils, the common heath (*Eri'ca vulga'ris*) is very advantageously employed; it requires to be clipped twice annually, and may be planted at any season. *Box* is neat, but objectionable as a harbour for vermin, liable to decay, troublesome, and as a great impoverisher of the soil. *Thrift* is almost as objectionable; when employed, it is best inserted by the dibble during September, the plants being placed two inches apart. It requires frequent trimming, and to be renewed every three years. *Gentiane'lla* makes a very beautiful edging, but is expensive. It may be planted in September. Various other substitutes have been recommended, but none seem so deserving of attention as the *Saxi'fraga hypnoi'des*. It is a native plant, and is strongly recommended. Sprigs have to be planted a few inches asunder; they soon spread out and unite, only require paring once in autumn or summer, and no other attention than a second paring in winter or early spring. In winter the leaf of this saxifrage is a refreshing green, and in spring and summer it is in great beauty, from its multitude of white flowers and pink buds. The cuttings strike without difficulty. *Turf* is sometimes employed, and should be of the finest grasses, such as are found on the chalk downs. *Cast-iron* edgings, if kept constantly painted, either very dark green, or dark brown, are very neat, and, if of an open basket-work pattern, very ornamental.

EDGWO'RTHIA. (Named after *M. Edgeworth*. Nat. ord., *Daphnuds* [Thymelacæe]. Linn., 8-*Octandria* 1-*Monogynia*. Allied to *Daphne*.)

The flower-heads at the end of the shoots are in round balls, covered with hairs; when open they are clear, yellow, and fragrant. Must not be confounded with *Edgewo'rthia* of Falconer, now called *Rept'nia*. A *Daphne*-like, greenhouse plant. Cuttings in sand, under a bell-glass, in spring; and grafting should be tried on the Spurge-laurel; peat and loam. Winter temp., 40° to 45°.

E. chrysa'ntha (golden-flowered). 3. Yellow. June. China. 1845.

EDWA'RDSIA. (After *Mr. Edwards*, botanical draughtsman. Nat. ord., *Leguminous Plants* [Fabacæe]. Linn., 10-*Decandria* 1-*Monogynia*. Allied to *Sophora*.)

All have yellow flowers. Cuttings of firm side-shoots, several inches in length, in sand, under a glass, in summer; sandy peat and a little lumpy

loam. If in pots in a greenhouse, winter temp., 35° to 45°; if kept dry during winter, all except *E. nitida* will stand against a wall.

E. Chile'nsis (Chilian). May. Chili. 1822.

— *chrysophylla* (golden-leaved). 12. May. New Zealand.

— *grandiflora* (large-flowered). 12. May. New Zealand. 1772.

— *Macnab'na* (Mr. Macnab's). 6. July. Australia. 1820.

— *microphylla* (small-leaved). 6. May. New Zealand. 1772.

— *nitida* (least). 4. May. New Zealand. 1818.

— *myriophylla* (many-leaved). 5. May. New Zealand.

— *nitida* (shining). 8. Bourbon. 1820.

EGG-PLANT OR BEARER. *Sola'num ovi'gerum*.

EGG-SHELLS. See ANIMAL MATTERS.

EGLANTINE. *Ro'sa lu'tea* and *Ru'bus Eglant'ria*.

EGYPTIAN LOTUS. *Nymphæ'a lotus*.

EGYPTIAN THORN. *Aca'cia ve'ra*.

EHRE'TIA. (After *Ehret*, a German botanical draughtsman. Nat. ord., *Ehretiads* [Ehretacæe]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Tournefortia* and *Heliotropium*.)

All of them unfold their flowers from twisted (gyrate) stalks, like the *Heliotrope*. All evergreens and white-flowered. Cuttings in sandy soil, in April, under a bell-glass, and in bottom-heat; loam and peat. Summer temp., 60° to 80°; winter, 50° to 55°. The New Holland species will do in a temperature, in winter, of 35° to 45°.

E. acuminata (long-pointed). 15. July. N. Holland. 1820.

— *buxifolia* (box-leaved). 8. E. Ind. 1823.

— *dinamica'ta* (straggling). 15. Havannah. 1820.

— *internodis* (interknotted). 6. Antilles. 1819.

— *la'vis* (smooth). 12. E. Ind. 1823.

— *microphylla* (small-leaved). 10. July. E. Ind. 1818.

— *serrata* (saw-edged-leaved). 6. E. Ind. 1823.

EKEBE'RGIA. (After *Capt. Ekeberg*, a Swede. Nat. ord., *Meliads* [Meliacæe]. Linn., 10-*Decandria* 1-*Monogynia*. Allied to *Trichilia*.)

A fine tree, with the aspect of a large *Me'lia Azeda'rach*.

E. Cape'nsis (Cape). White. July. Cape of Good Hope. 1789.

ELÆ'AGNUS. Oleaster, or Wild Olive. From *elæagnos*, Dioscorides's name for the Wild Olive. Nat. ord., *Oleasters* [Elæagnacæe]. Linn., 4-*Tetrandria* 1-*Monogynia*. Allied to *Shepperdia*.)

The flowers of *E. orienta'lis* are highly fragrant, and the fruit is esteemed in Persia. The deciduous species and their varieties, by seeds sown in spring, and cuttings inserted in the open ground, in autumn; the evergreen species, by layers in autumn, and cuttings under a hand-light, in summer; sandy soil and a little peat, and requiring, during the winter, the assistance of the greenhouse. The hardy kinds are very graceful.

GREENHOUSE EVERGREENS.

- E. acuminata* (long-pointed). 4.
— latifolia (broad-leaved). 4. July. E. Ind. 1712.
— orientalis (eastern). 10. July. Levant. 1748.

HARDY DECIDUOUS.

- E. angustifolia* (narrow-leaved). Yellow. July.
 South Europe. 1633.
— dactylifera (date-form-fruited). White.
 July.
— argentea (silvery). 10. N. Amer. 1813.
— Canadensis (Canadian). White. Canada. 1848.
— conferta (crowded). 10. White. Nepaul. 1825.
— hortensis (garden). 20. Yellow. July. South
 Europe. 1633.
— parvifolius (small-leaved). 10. White. June.
 India. 1843. Evergreen.
— salicifolia (willow-leaved).
— spinosus (prickly). White. July. Egypt. 1826.
— Sanguis (Songarian). Pale yellow. July.
 Siberia. 1821.
— triflorus (three-flowered). White. July.
 Nepaul. 1825.
— umbellatus (umbelled). White. July. Ne-
 paul. 1829.

ELÆOCARPUS. (From *elaia*, the olive,
 and *karpos*, fruit; resemblance of fruits.
 Nat. ord., *Lindenbloss* [Tiliaceæ].
 Linn., 11-Dodecandria 1-Monogynia.)

The rough, bony fruit, or stone, divested of the
 pulp and polished, makes handsome necklaces.
 Evergreens, with white flowers. Seeds in a hot-
 bed, in spring; cuttings of ripened young shoots,
 with the leaves attached, in sandy soil, under a
 bell-glass, and bottom-heat; loam and a little
 fibry peat. Summer temp., 60° to 80°; winter,
 50° to 55°; *E. cyathus*, winter, 35° to 45°.

- E. cyathus* (blue-fruited). 10. July. N. Hol-
 land. 1803.
— grandiflorus (large-flowered). 20. White,
 crimson. E. Ind. 1829.
— serratus (saw-edge-leaved). 20. E. Ind. 1774.

ELÆODENDRON. Olive Wood. (From
elaia, olive, and *dendron*, a tree; alluding
 to the resemblance. Nat. ord., *Spindle-
 trees* [Celastraceæ]. Linn., 5-Pentandria
 1-Monogynia. Allied to *Hartogia*.)

For culture, see *ELÆOCARPUS*.

GREENHOUSE EVERGREENS.

- E. australis* (southern). 3. Green, white. July.
 N. S. Wales. 1796.
— Capensis (Cape). 18. Green. June. Cape
 of Good Hope. 1828.
— croceum (rusty). White. June. Cape of
 Good Hope. 1794.
— integrifolium (entire-leaved). 3. Green, white.
 July. N. Holland.

STOVE EVERGREENS.

- E. glaucum* (milky-green). 6. Green. Ceylon.
 1824.
— orientale (eastern). 12. Green, yellow.
 Mauritius. 1771.
— sylocarpum (wood-fruited). 3. Green, yellow.
 Antilles. 1816.

ELAÏS. The Oil Palm. (From *elaia*,
 the olive; similarity of expressing oil
 from the fruit. Nat. ord., *Palms* [Pal-
 maceæ]. Linn., 22-Diacia 6-Hexandria.
 Allied to *Cocos*.)

The best kind of palm wine is from this palm.
 Palm oil, so much used in the manufacture of
 soap, and as a sort of grease, is chiefly the pro-
 duce of *E. Guineensis* and *melanococca*. Stove
 Palms, with greenish-white flowers. Suckers and
 seeds; rich, sandy soil. Summertemp., 60° to
 85°; winter, 55° to 60°.

- E. Guineensis* (Guinea). 30. Guinea. 1730.
— melanococca (black-seeded). 30. New Gre-
 nada. 1821.
— occidentalis (western). 30. Jamaica. 1820.
— Pernambucana (Pernambuco). 50. Brazil.
 1825.
— spectabilis (showy). E. Ind. 1831.

ELAPHAGLOSSUM. See *OLFERISIA*.

ELATER. See WIRE-WORM.

ELDER. *Sambucus nigra*.

Varieties.—There are several kinds
 in cultivation, but the old *S. nigra* is in
 most general esteem, being the best
 adapted for wine-making. The White-
 berried (*S. albidula*) is much esteemed by
 some, especially as an ornamental shrub.
S. viridis, or the Green-berried, and *S.
 nigra variegata*, the Silver-striped, and
S. nigra aurea, the Golden-edged, are
 interesting varieties. One with scarlet
 berries is said to be very handsome.
 Most of the varieties of *S. nigra* are
 ornamental, and well adapted to assist in
 forming screens to the exterior of small
 gardens, or even as hedge-row fruits.

Propagation.—Generally by cuttings,
 which strike easily, even as large trun-
 cheons. They are readily produced,
 also, by suckers, and in all these cases
 care should be taken to cut away from
 the stem those buds which are to be
 placed below the ground. They are
 easily produced from seed, and by such
 means varieties may be obtained.

Soil.—They will thrive in almost any
 ordinary soil; still they prefer an upland,
 light loam, containing a fair amount of
 vegetable matter.

Culture.—The form will depend on the
 situation it is to occupy. The elder will
 bear fruit either as a huge bush, or as a
 small tree, provided the preparatory course
 of training is properly carried out. Those
 for fruiting as bushes should be formed
 almost as a gooseberry-bush in its earlier
 stages, keeping the centre somewhat thin.
 Indeed, thinning out superfluous shoots
 is nearly all that can be practised.
 Those for standard trees, or with stems,
 must be trained by clearing away side-
 shoots, and forming a head at a higher
 level. About five or six feet are commonly
 allowed for stem height, and the head
 must then be formed as recommended

for the bushes. They require scarcely any subsequent culture, and will endure for many years.

Fruit.—The making of elder wine is the principal use. Elder flowers are used occasionally to flavour confections.

ELECAMPANE. *I'nula h'ele'nium*.

ELICHRY'SUM. See HELICHRYSUM.

ELISE'NA. (Ancient name of romance. Nat. ord., *Amaryllids* [Amaryllidaceæ]. Linn., 6-*Hexandria* 1-*Monogynia*. Allied to *Pancratium*.)

A fine, rare, greenhouse bulb, with a flower-scape a yard high, with six to eight large white flowers, more like a Peruvian Daffodil (*Isme'ne*) than a *Pancratium*, and requires more than one-half sand, with light loam, to flower it well. Offsets; peat and very sandy loam. Summer temp., 55° to 80°; winter, 45° to 55°.

E. longipetala (long-petaled). May. Lima. 1837.

ELLIO'TTIA. (After S. Elliot, an American botanist. Nat. ord., *Cyrtillads* [Cyrtillaceæ]. Linn., 8-*Octandria* 1-*Monogynia*.)

A little evergreen bush, with spikes of Andromeda-looking flowers. It requires a warm situation and a peat border. Cuttings of small shoots under a hand-light in spring, or layers at the end of summer; sandy loam and peat. If in a greenhouse, winter temp., 35° to 40°.

E. racemo'sa (racemed). 2. White. June. Georgia.

ELLOBOCA'RPU. Pod Fern. (From *en*, in, *lobos*, a pod, and *carpos*, a seed-vessel; alluding to the appearance of the divided fronds. Nat. ord., *Ferns* [Polypodiaceæ]. Linn., 24-*Cryptogamia* 1-*Filices*.)

A beautiful stone Fern. Divisions; peat and loam, rather most of the latter. Summer temp., 55° to 80°; winter, 48° to 55°. By some botanists called *Ceratopteris*.

E. olera'ceus (potherb). 1½. Brown. August. Tranquebar. 1818.

ELM. *U'lmus campe'stris*.

ELM-BEETLE. See SCOLYTUS.

ELOBE'IA. (From *elodes*, a marsh, the native place of the species. Nat. ord., *Tutsans* [Hypericaceæ]. Linn., 3-*Triandria* 3-*Trigynia*. Allied to *Parnassia*.)

Aquatic annuals, requiring a cool stove. Sow in light loam annually, and keep the pots standing in trays of water.

E. Guiane'nsis (Guiana). ½. White. July. Guiana. 1820.

— *puleh'ella* (pretty). E. Ind. 1831.

EMBE'LIA. (From *Æmbelia*, its name in Ceylon. Nat. ord., *Ardisiads* [Myrsinaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Ardisia*.)

Like *Ardisia*, the chief beauty resides in the leaves and berried fruit. The pungent berries of *Embe'lia ribes* are earable, and called currants in India. Stove evergreen. Cuttings of half-year young shoots in sandy soil, under a bell-glass,

in heat; peat and loam. Summer temp., 60° to 80°; winter, 50° to 55°.

E. robu'sta (robust). 20. White, green. E. Ind. 1823.

E'MBLICA. (The native name. Nat. ord., *Spurge-worts* [Euphorbiaceæ]. Linn., 21-*Monæcia* 10-*Decandria*. Allied to *Phyllanthus*.)

Stove evergreens, from the Molucca Islands. Cuttings, dried at their base, in sandy soil, in heat; sandy peat. Summer temp., 60° to 75°; winter, 48° to 55°.

E. officina'lis (shop). 12. Pale yellow. July. 1763.

— *racemo'sa* (racemed). 2. Green, yellow. July. 1793.

EMBO'THRIUM. (From *en*, in, and *bo-thrion*, a little pit; referring to the pollen-cases, or anthers. Nat. ord., *Proteads* [Proteaceæ]. Linn., 4-*Tetrandria* 1-*Monogynia*. Allied to *Knightia*.)

Greenhouse evergreen shrub, from New Holland. Cuttings in sandy soil, taken when the wood is ripe, under a glass; sandy peat, with a little fibry loam. Winter temp., 35° to 45°.

E. cocc'i'neum (scarlet). 3. Scarlet. Africa. May. 1851.

— *strobil'u'm* (strobile-like). 3. Green, yellow. April. 1824.

E'MPETRUM. Crow Berry. (From *en*, in, or upon, and *petros*, a rock; plants grow in stony places. Nat. ord., *Crow-berries* [Empetraceæ]. Linn., 22-*Diæcia* 3-*Triandria*.)

Low, spreading, heath-like plants, better suited for damp peat-beds than rock-work. The black berries are as wholesome as black currants, and more palatable. Their Gaelic name means raven-berries; but ravens or crows never touch them. Grouse eat them greedily, and Ptarmigans feed on the leaves in winter. Hardy evergreens; propagated by cuttings under a hand-light, in sandy peat, in summer, and by seeds sown in spring or autumn, which generally remain a year in the soil before vegetating; heathy soil, and rather moist situation.

E. nig'rum (black-berried). 1. April. Britain.

— *Scot'icum* (Scotch). ½. April. Scotland.

— *rub'rum* (red-fruited). Brown, purple. S. Amer. 1833.

EMPLEU'RUM. (From *en*, in, and *pleu-ron*, a membrane; referring to the seed being suspended from the seed-cord by a thin membrane. Nat. ord., *Rue-worts* [Rutaceæ]. Linn., 21-*Monæcia* 4-*Tetrandria*. Allied to *Diosma*.)

Greenhouse evergreen shrub. Cuttings of points of shoots when two inches in length, and getting a little firm at their base, taken off with a heel; peat, one part, sandy fibry loam, two parts. Winter temp., 40° to 45°.

E. serrula'tum (fine-saw-edged). 3. Pink. June. 1774. Cape of Good Hope.

ENCE'LIA. (From *egchelion*, a little eel; formation of the seeds. Nat. ord., *Com-*

posites [Asteraceæ]. 19-*Syngenesia* 3-*Frustranea*. Allied to *Sclerocarpus*.)

Greenhouse evergreens. Seeds, when obtainable, in spring; cuttings, a little dried at the base, in sand, under a glass, and shaded; sandy, fibry loam, with a little peat. Winter temp., 35° to 45°.

E. cane-scens (hoary). 1½. Orange. July. Peru. 1785.

— *halimifolia* (halimus-leaved). 1½. Yellow. July. Mexico. 1825.

ENCHANTER'S NIGHTSHADE. *Circæ'a*.

ENDIVE. (*Cichorium endivia*.) Used in salads.

Varieties.—The green-curled is cultivated for the main crops, as it best endures wet and cold; the white-curled, chiefly grown for summer and autumn; the broad-leaved, or *Batavian*, is preferred for soups and stews, but is seldom used for salads.

Soil and Situation.—A light, dry, but rich soil, dug deep and unshaded. It is best to form an artificial bed by laying a foot in depth of earth on a bed of brickbats, stones, &c.

Sowing.—For a first crop about the middle of April, to be repeated in May, but only in small portions, as those which are raised before June soon advance to seed. Towards the middle of June the first main crop may be sown again, in the course of July, and lastly, early in August; and in this month the main plantation is made. Sow in drills twelve inches apart, and about a quarter of an inch below the surface. When an inch in height, thin the plants to three or four inches apart: those taken away are too small to be of any service if pricked out. Give water freely in dry weather.

When the larger seedlings have been transplanted, the smaller ones which remain should have a gentle watering, and in twelve or fourteen days they will afford a second successional crop; and, by a repetition of this management, in general, a third. The plants are generally fit for transplanting when of a month's growth in the seed-bed, or when five or six inches high.

Planting.—Set them in rows twelve or fifteen inches apart each way; the *Batavian* requires the greatest space. Water must be given moderately every evening until the plants are established, after which only in excessive and protracted drought. Those which are left in the seed-bed, in general, attain a finer growth than those that have been moved.

In November, some plants that have attained nearly their full size may be removed to the south side of a sloping bank of dry, light earth, raised one or two feet behind; to be protected by frames, mats, or thick coverings of litter, during severe and very wet weather; but to be carefully uncovered during mild, dry days. The plants, in this instance, are not required to be further apart than six or eight inches. This plan may be followed in open days during December and January, by which means a constant supply may be obtained. Instead of being planted in the above manner on a terrace, it is sometimes practised to take the plants on a dry day, and the leaves being tied together, to lay them horizontally in the earth down to the tip of the leaves; this accelerates the blanching, but otherwise is far more subject to failure. As the number necessary for a family is but small, but few should be planted at a time.

Blanching.—About three months elapse between the time of sowing and the fitness of the plants for blanching. This operation will be completed in from ten to fourteen days in summer, or in three or four weeks in winter. To blanch the plants tie their leaves together; or place tiles or pieces of board upon them, or tie their leaves together, and cover them to their tips with mould, making it rise to a point, so as to throw off excessive rains. All these methods succeed in dry seasons, but in wet ones the plants, treated according to any of them, are liable to decay.

The one which succeeds best in all seasons is to fold the leaves round the heart as much as possible in their natural position; and, being tied together with a shred of bass-mat, covered up entirely with coal-ashes in the form of a cone, the surface being rendered firm and smooth with the trowel. Sand will do, but ashes are equally unretentive of moisture, whilst they are much superior in absorbing heat, which is so beneficial in the hastening of the process. If the simple mode of drawing the leaves together is adopted to effect this blanching, they must be tied very close, and, in a week after the first tying, a second ligature must be passed round the middle of the plant to prevent the heart-leaves bursting out. A dry afternoon, when the plants are entirely free from moisture, should be selected, whichever mode is adopted.

A very excellent mode is to spread over the surface of the bed about an inch in depth of pit-sand, and covering each plant with a small pot made of earthenware, painted both within and on the outside to exclude the wet—that worst hinderance of blanching. To avoid this, the pots should be taken off daily to allow the plants to dry, and the insides of the pots wiped. A sea-kale pot in miniature, like the annexed figure, is to be preferred; and if made of zinc or other



metal, it would be better, because not porous and admixive of moisture.

To obtain Seed.—The finest and soundest plants should be selected of the last plantation. For a small family three or four plants of each variety will be sufficient. Plant these in March beneath a south fence, about a foot from it, and eighteen inches apart. As the flower-stem advances, fasten it to a stake, or, if they are placed beneath palings, by a string, to be gathered as the seed upon it ripens; for if none are gathered until the whole plant is changing colour, the first ripened and best seed will have scattered and be lost. Each branch must be laid, as it is cut, upon a cloth in the sun; and when perfectly dry, the seed beaten out, cleansed, and stored.

ENGINE. This name is applied to many contrivances for supplying water to plants.

1. *The pump-syringe, or syringe-engine,* can be supplied with water from a common bucket, from which it sucks the water through a perforated base. The handle is sometimes made to work like that of the common pump.

2. *The barrow watering-engine* is represented in the next figure. It will throw



the jet of water to a distance of forty or fifty feet, or somewhat less if a rose is



upon the end of the delivery-pipe. It holds from twenty to thirty gallons of water; but may be made, with a leather-hose attached, to communicate with a pond or other reservoir of water.

3. *The curved barrel-engine* is excellent; for the barrel, piston-rods, &c., being so constructed as to be turned on a lathe, they are so accurate that there is the least possible loss of power, either from unnecessary friction or from an imperfect vacuum.



ENKYA'NTHUS. (From *enkuos*, enlarged, and *anthos*, a flower; the flowers swollen in the middle. Nat. ord., *Heathworts* [*Ericaceæ*]. Linn., 10-*Decandria* 1-*Monogynia*. Allied to *Arbutus*.)

Greenhouse evergreen shrubs, with pink flowers, from China. Cuttings of firm young shoots in sand, under a hand-light, in April or May; a bell-glass is too close, unless a little air is admitted; sandy loam two parts, and fibry peat one part. Winter temp., 40° to 45°.

E. quinqueflorus (five-flowered). 3. May. 1812.
—*reticulatus* (netted). 3. January. 1822.

ENSLE'NIA. (Named after *A. Enslen*, a botanist. Nat. ord., *Asclepiads* [*Ascle-*

piadacæ]. Linn., 5-Pentandria 2-Digynia. Allied to *Asclepia*.)

Virginian hardy herbaceous climber. Seeds and divisions in spring; common soil.

E. albida (whitish). White. July. 1828.

ENTA'DA. (The Malabar name. Nat. ord., *Leguminous Plants* [Fabacæ]. Linn., 23-Polygamia 1-Monœcia. Allied to *Mimosa*.)

The large brown beans, called Gela in India, and used by the natives for washing their hair, are the seeds of *E. Pursætha*. Stove evergreen climbers, with white flowers. Cuttings of young shoots getting firm, in sand, under glass, and in heat; loam and peat in equal portions. Summer temp., 60° to 75°; winter, 48° to 55°.

E. adenanthera (adenanthera-like). 20. South Sea Islands. 1817.

— *monostachya* (single-spiked). 20. Malabar. 1800.

— *polystachya* (many-spiked). 26. W. Ind. 1816.

— *Pursætha* (*Pursætha*). 20. E. Ind. 1780.

ENTELE'A. (From *enteles*, perfect; the stamens all fertile. Nat. ord., *Linden-blooms* [Tiliacæ]. Linn., 13-Polyandria 1-Monogynia. Allied to *Grewia*.)

Greenhouse evergreens, from New Zealand. Cuttings of half-ripened shoots in sand, under a glass; sandy loam and a little peat. Winter temp., 35° to 45°.

E. arborescens (tree-like). 20. White. May. 1820.

— *palmata* (hand-leaved). 4. White. May. 1830.

— *pubescens* (downy). White. May. 1836.

ENTRANCES. Upon these parts of a residence, which should give a first and appropriate impression, Mr. Wheateley has these just remarks:—"The road which leads up to the door of the mansion may go off from it in an equal angle, so that the two sides shall exactly correspond; and certain ornaments, though detached, are yet rather within the province of architecture than of gardening; works of sculpture are not, like buildings, objects familiar in scenes of cultivated nature; but vases, statues, and termini, are usual appendages to a considerable edifice; as such, they may attend the mansion, and trespass a little upon the garden, provided they are not carried so far into it as to lose their connexion with the structure. The platform and the road are also appurtenances to the house; all these may therefore be adapted to its form, and the environs will thereby acquire a degree of regularity; but to give it to the objects of nature, only on account of their proximity to others which are calculated to receive it, is, at the best, a refinement. Upon the same principles regularity has been acquired in the approach; and an additional reason has been assigned for

it, that the idea of a seat is thereby extended to a distance; but that may be by other means than by an avenue. A private road is easily known; if carried through grounds, or a park, it is commonly very apparent; even in a lane, here and there a bench, a painted gate, a small plantation, or any other little ornament, will sufficiently denote it. If the entrance only be marked, simple preservation will retain the impression along the whole progress; or it may wind through several scenes distinguished by objects, or by an extraordinary degree of cultivation: and then the length of the way, and the variety of improvements through which it is conducted, may extend the appearance of a domain, and the idea of a seat, beyond the reach of any direct avenue. A narrow vista, a mere line of perspective, be the extent what it may, will seldom compensate for the loss of that space which it divides, and of the parts which it conceals.

EPA'CRIS. (From *epi*, upon, and *akros*, the top. The *Epacris* grows on the tops of hills and rising grounds. Nat. ord., *Epacrids* [Epacridacæ]. Linn., 5-Pentandria 1-Monogynia.)

Greenhouse evergreen shrubs, from Australia. Cuttings of the tips of the shoots when from one to two inches in length, in sand, under a bell-glass, in spring or early summer; three or four round a small pot. Sandy, fibry peat suits them best. They are better kept in turf-pits than in the open air during the summer, as the sun striking upon the pots is apt to scorch the hair-like roots. If set out of doors, the pots should be plunged in earth or ashes. The plants should be cut back when done flowering, and kept close until new growth is making. Winter temp., 40° to 48°.

E. Andromedæiflora (Andromeda-flowered). 2. White, rose. 1848.

— *apiculata* (small-tufted). 2. May. 1825.

— *bicolor* (two-coloured-flowered). 2. Deep crimson, white. 1848.

— *campanulata* (bell-flowered). 3. Deep blush. April. 1830.

— — *alba* (white-flowered). 2. White. April, 1830.

— — *maxima* (largest-bell-flowered). 3. Dark crimson. February. 1848.

— *cerasiflora* (wax-flowered). 2. White. April. 1831.

— *exserta* (drawn-out). 2. White. May. 1812.

— *delicata* (delicate). 2. Blush, white. April. 1848.

— *densiflora* (crowded-flowered). 2. Blush. April. 1848.

— *dubia* (doubtful). 3. White. April.

— *grandiflora* (large-flowered). 3. Scarlet. March. 1803.

— *heteroneura* (various-stemmed). 3. White. June. 1823.

- E. impressa* (flattened). 3. Crimson. June. 1834.
 — *parviflora* (small-flowered). 3. Red. April. 1836.
 — *microphylla* (small-leaved). 2. White. May. 1822.
 — *minuta* (vermilion). 3. White, vermilion. May. 1844.
 — *nivalis* (snowy-flowered). 3. White. February. 1829.
 — *onosmiflora* (onosma-flowered). 2. Red. June. 1823.
 — *paludosa* (marsh). 3. Pale red. May. 1825.
 — *pulchella* (neat). 4. Pink. May. 1804.
 — *purpurea* (purplish). 3. Purple. February. 1803.
 — *rubra* (red-flowered). 3. Red. February. 1803.

— *variabilis* (variable). 2. Pink. March. 1829.
 EPHE'DRA. (The Greek for the Hip-
 puris, or Horsetail, which it resembles.
 Nat. ord., Joint Firs [Gnetaceæ]. Linn.,
 22-Diecia 13-Monadelphia.)

Evergreens. *E. monostachya* inhabits the mar-
 gins of salt lakes and springs in Siberia, and
 would be a useful little plant to cover spaces
 flooded by spring tides; both that and *E. dista-*
chya would live on the sea-shore, and bear clip-
 ping.

- E. altissima* (tallest). 24. Barbary. 1825. Half-
 hardy twiner.
 — *distachya* (two-spiked). 2. June. France. 1570.
 — *minor* (less). 1838.
 — *monostachya* (one-spiked). 2. October. Si-
 beria. 1772.

EPIDE'NDRUM. (From *epi*, and *dendron*,
 a tree; air plants attached to trees. Nat.
 ord., Orchids [Orchidaceæ]. Linn., 20-
 Gynandria 1-Monandria. Allied to Lælia.)

Stove orchids. Division of the plant before ac-
 tive growth commences; fibry peat, broken pots,
 a little charcoal, and sphagnum-moss; the plant
 fixed above the surface of a pot nearly filled with
 drainage. Summer temp., 60° to 90°, with mois-
 ture; winter, 45° to 60°, with more dryness.

- E. aggregatum* (clustered). Peru.
 — *aloifolium* (aloe-leaved). Green, white. March.
 E. Ind. 1835.
 — *aromaticum* (aromatic). 3. Yellow. May.
 Guatemala. 1835.
 — *asperum* (rough). Yellowish. Mexico.
 — *aurantiacum* (orange). Orange. Guatemala.
 1835.
 — *auritum* (eared). Pale green. Guatemala. 1843.
 — *avro-purpureum* (gold and purple). Yellow,
 purple. July. Hispaniola.
 — *bicornatum* (two-horned). 1½. White. April.
 Jamaica.
 — *Boothianum* (Boothe's). ½. Green. September.
 Cuba. 1835.
 — *brachycnium* (short-lipped). Yellow, brown.
 Sierra Nevada.
 — *cæspitosum* (tufted). White, rose. Peru.
 — *Candoi* (De Candolle's). Brown, yellow.
 Mexico. 1836.
 — *carneum* (fleshy). Yellow. Brazil.
 — *cauliflorum* (stem-flowering). Yellow. Rio
 Janeiro. 1830.
 — *cephiforme* (onion-shaped). 3. Green, yellow.
 May. Mexico. 1838.
 — *chionum* (snowy). White. North Grenada.
 — *ciliare* (hair-fringed). 1. White. July. Mar-
 tinique. 1793.

- E. cinnabarinum* (crimson). 1. Crimson. Per-
 nambuco. 1837.
 — *latifolium* (broad-leaved). Trinidad.
 1836.
 — *minus* (smaller). Trinidad. 1836.
 — *clavatum* (club-stemmed). ½. Green, white.
 July. Cumana. 1834.
 — *Clowesii* (Clowes'). Yellow, white. Guati-
 mala. 1835.
 — *cochleatum* (spiral). 1. Purple. July. W.
 Ind. 1799.
 — *latifolium* (broad-leaved). Xalapa. 1828.
 — *collare* (banded). 1½. White. Guatemala.
 1843.
 — *cordatum* (heart-shaped). Peru.
 — *crassifolium* (thick-leaved). Pink. April. St.
 Vincent.
 — *crispatum* (curled). White. May. Mexico.
 1839.
 — *Cubense* (Cuban). Yellow, purple. June. Cuba.
 1842.
 — *cuspidatum* (pointed). 1. White. June.
 Mexico. 1808.
 — *densiflorum* (dense-flowered). Green, brown.
 Mexico. 1836.
 — *discolor* (two-coloured). Mexico.
 — *durum* (hard). Yellow. Guiana.
 — *elongatum* (long-stalked). 2. Red. May. W.
 Ind. 1798.
 — *paullidum* (pale). Brazil. 1836.
 — *ensatum* (sword-leaved). Mexico.
 — *crubescens* (blushing). Rose. Mexico. 1837.
 — *falcatum* (sickle-shaped). Yellow. Oaxaca.
 1838.
 — *fimbriatum* (fringed). White, violet. Peru.
 — *flavidum* (yellowish). Yellow. Pamplona.
 — *flavum* (yellow). Yellow. Brazil.
 — *flesuosum* (zigzag). White, green. Deme-
 rara. 1836.
 — *floridanum* (many-flowered). 1. Green, blue.
 October. Mexico.
 — *fragrans* (sweet-scented). ½. White. Sep-
 tember. Jamaica. 1778.
 — *cinnamomeum* (cinnamon-scented).
 White. September. Jamaica. 1836.
 — *Funckianum* (Funck's). Brown. Mexico.
 — *giganteum* (gigantic). Brazil. 1843.
 — *glauum* (milky-green). Green, purple. June.
 Mexico. 1837.
 — *glumaecum* (chaffy). White. Brazil. 1839.
 — *gracile* (slender). 3. Red, green. March.
 Bahamas.
 — *Grahami* (Dr. Graham's). 2. Yellow, green.
 August. Mexico.
 — *grandiflorum* (large-flowered). Mexico.
 — *graniticum* (grained). Green, white. June.
 Guiana. 1840.
 — *Hanburyi* (Hanbury's). 2. Rose. August.
 Mexico. 1843.
 — *Hartwegii* (Hartweg's). Peru.
 — *hormidium* (clary-like). Yellow, green. Au-
 gust. Mexico. 1836.
 — *Havannense* (Havanna). Havanna. 1836.
 — *herbaceum* (herbaceous). Brazil. 1837.
 — *imatifolium* (thong-leaved). Rose. De-
 merara.
 — *ionosmum* (violet-scented). Yellow, green.
 June. Guiana. 1836.
 — *lacerum* (torn). 3. Pale pink. November. Ha-
 vannah. 1835.
 — *lactiflorum* (milky-flowered). White. Mexico.
 — *lanceolatum* (lanceolate). Pink. Honduras.
 — *lanceifolium* (lance-leaved). Pale yellow.
 March. Mexico. 1839.
 — *latilabrum* (broad-lipped). Green. March.
 Brazil. 1840.

E. lacertinum (lizard-tailed). Yellow, green. March. Guatemala. 1837.
— ledifolium (ledum-leaved). Yellow. Mexico.
— lentiginosum (freckled). Yellow, green. March. Demerara. 1837.
— leucocochlitum (white-lipped). Yellow, green. March. Caraccas. 1840.
— Lindenii (Mr. Linden's). Rose. Merida.
— lined're (narrow-leaved). Peru.
— linearifolium (narrow-leaved). 1. White, purple. June. Mexico. 1850.
— Linkia-num (Link's). Yellow, white. March. Mexico. 1840.
— longibulbon (long-bulbed). Guiana. 1839.
— macrochilum (large-lipped). 2. Brown, white. July. Mexico. 1836.
— — album (white-tipped). White, rose. May. S. Amer. 1824.
— — rosium (rosy). Rose. May. Guatemala. 1842.
— macrostachyum (large-spiked). Green, white. Ceylon.
— Michuacanum (Michuacan). Pale yellow. Mexico. 1840.
— monophyllum (one-leaved). White. Demerara.
— Monroea-num (Monroe's). White, pink. July. Guatemala. 1840.
— musciferum (fly-bearing). Demerara. 1836.
— naevosum (freckled). White, yellow. February. Oaxaca. 1846.
— nemorale (wood). Purple. June. Mexico. 1840.
— nocturnum (night-fragrant). 1. White. September. Martinique. 1836.
— — angustifolium (narrow-leaved). W. Ind. 1835.
— — latifolium (broad-leaved). 1. Yellow, white. October. W. Ind. 1836.
— — pulmulum (dwarf). Ensequito. 1835.
— nutans (nodding). 1. Green. July. Jamaica. 1793.
— odoratissimum (sweetest-scented). 1. Dingy green. August. Rio Janeiro. 1827.
— oncidiod'es (oncidium-like). 3. Yellow, brown. S. Amer.
— orchidiflorum (orchis-flowered). Brown. Bahia.
— orgyale (wrathful). Yellow. St. Bogota.
— ovalifolium (oval-leaved). Green, white. April. Mexico. 1835.
— ovulum (egg-like). Green, white. July. Bolanos. 1842.
— oxyptalum (sharp-petaled). Yellow. April. Cuba.
— pachyanthum (thick-flowered). Green. Guiana. 1837.
— Parkinsonia-num (Mr. Parkinson's). 2. Green, yellow. September. Mexico. 1838.
— pastoris (shepherd's). White, green. March. Mexico. 1836.
— patens (spreading). White. October. St. Vincent.
— phaniceum (purple). 2. Cream, purple, green. June. Cuba. 1840.
— piperinum (peppery-scented). Quito. 1846.
— polystachyum (many-spiked). Yellow. June. Peru. 1840.
— primulinum (primrose-scented). Yellow, brown. Bahamas. 1837.
— propinquum (related). Brown. Mexico.
— punctatum (dotted). Dotted. W. Ind.
— pyriforme (pear-shaped-bulbed). Red, yellow. January. Cuba.
— radiatum (ray-flowered). 1. Green, purple. Mexico. 1835.
— radicans (stem-rooting). Orange, yellow. October. Mexico. 1839.

E. raniferum (frog-bearing). 2. Green, brown. May. Mexico. 1839.
— recurvatum (bent-back). Rose. April. Colombia.
— refractum (broken). Dark red. May. Caraccas.
— rhizophorum (rooting). Guatemala. 1836.
— rigidum (stiff-petaled). 1. Yellowish-white. June. Jamaica. 1836.
— rubro-cinctum (red-edged). Yellow, brown. March. Brazil. 1836.
— saxatile (rock). Red, purple. Guayana.
— sceptrum (sceptre-like). Yellow, purple. Jago.
— Schomburgkii (Schomburg's). 2. Scarlet. Guiana. 1837.
— scutella (saucer-shaped). Green, yellow. Guayana.
— selligerum (saddle-formed). Pale white. April. Mexico. 1836.
— seipens (snake-like). Violet. Peru.
— Skinneri (Skinner's). 2. Green, white. July. Cumana. 1834.
— — majus (large-flowered). 1. Light purple. November. 1847.
— squallidum (squalid). Yellow, brown. June. Mexico. 1840.
— Stamfordianum (Stamford's). White, red. April. Guatemala. 1836.
— stenopetalum (acute-petaled). 1. Rose. March. Jamaica.
— striatum (streaked). White, red. May. Mexico. 1838.
— subulatifolium (awl-leaved). Yellow. Mexico.
— tibicinis (piper's). 8. Rose. Honduras. 1836.
— tigrinum (tiger-like). Yellow, red. Merida.
— Tolimense (Toliman). Yellow. Tolima.
— torquatum (twisted). Peru.
— tridens (three-toothed). White, green. April. Demerara. 1836.
— variegatum (variegated-leaved and flowered). 1. Green, white. January. Rio Janeiro. 1829.
— — coriaceum (leathery). 1. Green, purple. Demerara.
— venosum (veined-lipped). White, violet. Mexico.
— verrucosum (warted-flower-stalked). 1. Green, brown. Jamaica. 1825.
— Vincentinum (St. Vincent's). St. Vincent. 1840.
— virens (green). Green. Serampore.
— vitellinum (yoke-of-egg-coloured). 1. Orange, yellow. September. Mexico. 1840.
— — majus (larger). Orange, yellow. September. Oaxaca. 1841.
— viviparum (viviparous). White. January. Guayana. 1838.
— volubile (twisting). Peru.

EPIGEÆA. (From *epi*, upon, and *gai*, the earth; referring to its trailing habit. Nat. ord., *Heathworts* [Ericaceæ]. Linn., 10-*Decandria* 1-*Monogynia*.)

Hardy evergreen sweet-scented trailers, suitable for rock-works, and delighting in moist, peaty soil; propagated chiefly by layers; would be better in a cold pit during severe weather.

E. repens (creeping). 2. White. July. N. Amer. 1736.
— rubicunda (red-flowered). 2. Red. March. 1836.

EPILOBIUM. Willow Herb. (From *epi*, upon, and *lobos*, a pod; flowers superior, or seated on the seed-pod. Nat. ord., *Onagrad's* [Onagraceæ]. Linn., 8-*Octan-*

dria 1-*Monogynia*. Allied to *Clarkia* and *Zauschneria*.)

Hardy herbaceous perennials. Divisions, and many by seeds; common, light garden-soil. *E. villosum* requires the greenhouse or a cold pit.

- E. alpestre* (alpine). $\frac{1}{2}$. Purple. June. Switzerland. 1820.
- *angustifolium* (narrow-leaved). 4. Purple. July. Britain.
- *album* (white-flowered). 4. White. July. Britain.
- *angustissimum* (narrowest-leaved). 2. Purple. July. Alps, Europe. 1775.
- *candescens* (hoary). Rose. June. 1826.
- *coloratum* (coloured). 3. Purple. June. N. Amer. 1805.
- *crassifolium* (thick-leaved). 1. Red. June. 1829.
- *cylindricum* (cylindrical). Red. June. South Europe. 1837.
- *Dahuricum* (Dahuria). $\frac{3}{4}$. White. June. Dahuria. 1822.
- *Dodonei* (Dodoe's). $\frac{1}{4}$. Purple. July. France. 1700.
- *hirsutum* (hairy. *Codlins and Cream*). 4. Purple. July. Britain.
- *variegatum* (variegated-leaved). 4. Rosy. June. England.
- *hypericifolium* (hypericum-leaved). Red. June. South Europe. 1837.
- *lanceolatum* (spear-head-leaved). $\frac{1}{2}$. Purple. July. Italy. 1810.
- *minutum* (small). 1. White. August. Russia. 1838.
- *nultana* (nodding). Blush. June. Bohemia. 1827.
- *rosmarinifolium* (rosemary-leaved). 2. Purple. June. North Europe. 1800.
- *spicatum* (spiked). 4. Purple. June. N. Amer.
- *strictum* (erect). $\frac{1}{4}$. Purple. July. Pennsylvania. 1817.
- *tomentosum* (downy). 3. Purple. June. Asia. 1818.
- *villosum* (long-haired). 2. Purple. July. Cape of Good Hope. 1799.
- *virgatum* (twiggy). 2. Purple. July. Sweden.

EPIMEIDIUM. Barrenwort. (From *epi-medion*, a name used by Pliny. Nat. ord., *Berberids* [*Berberidaceæ*]. Linn., 4-*Tetrandria* 1-*Monogynia*. Allied to *Jeffersonia*.)

Hardy herbaceous perennials. Cuttings and divisions; sandy loam. *E. violaceum* likes the protection of a cold pit. *E. alpinum* does best in moist, peaty soil.

- E. alpinum* (alpine). $\frac{3}{4}$. Crimson. May. England.
- *diphyllum* (twin). $\frac{3}{4}$. Red. May. Japan. 1830.
- *grandiflorum* (large-flowered). White. April. Japan. 1836.
- *hexandrum* (six-stamened). $\frac{3}{4}$. Lilac. May. N. Amer. 1827.
- *macranthum* (large-flowered). 1. White, violet. April. Japan. 1836.
- *Muschianum* (Mussch's). 1. White. March. Japan. 1836.
- *violaceum* (violet). $\frac{3}{4}$. White, violet. April. Japan. 1837.

EPIPECTUS. (From *epipegnuo*, to coagulate; its effect on milk. Nat. ord.,

Orchids [*Orchidaceæ*]. Linn., 20-*Gynandria* 1-*Monandria*. Allied to *Listera*.)

Pretty British orchids, not difficult to grow. Divisions; common soil; kept rather dry during the resting period.

- E. latifolia* (broad-leaved). $\frac{1}{4}$. Purple. July.
- *neodia* (intermediate). $\frac{1}{4}$. Green, purple. September. In woods.
- *ovatis* (oval). $\frac{1}{4}$. Blush, red. July, Mountain sides.
- *purpurata* (purpled). $\frac{1}{4}$. Green, pink. July.
- *palustris* (marsh). $\frac{3}{4}$. Purple. July.
- *purpurata* (purpled). 1. Purple. June.

EPIPHORA. (From *epiphora*, inflammation of the eyes. A Cape terrestrial or ground *Orchid* [*Orchidaceæ*]. Linn., 20-*Gynandria* 1-*Monandria*. Allied to *Aspasia*.)

Greenhouse orchid. Division, before starting into fresh growth; fastened to a piece of peeled oak, and decayed moss fastened over the roots. Summer temp., 60° to 90°, with moisture; winter, 50° to 60°, dryish.

E. pubescens (downy). Brown, yellow. May. Delagoa Bay. 1838.

EPIPHYLLUM. (From *epi*, upon, and *phyllon*, a leaf; flowers borne on the edges of the leaf-like branches. Nat. ord., *Indian Figs* [*Cactaceæ*]. Linn., 12-*Icosandria* 1-*Monogynia*.)

Stove fleshy-leaved plants. Cuttings in summer, dried at the bottom before inserting them, or rather, laying them down in any loose material, such as gravel and rough leaf-mould; soil, loam, peat, lime-rubbish, and dried cow-dung in equal proportions. The smaller kinds do well grafted on the *Cactus speciosissimus*, &c. Summer temp., 50° to 80°; winter, 38° to 45°. For species see *Cactus*.

EPISCIA. See *ERINOSMA* and *LEUCOJUM*.

E. melittifolia (melittis-leaved). 1. Crimson. March. Dominica. 1852.

EPISEMA CÆRULA-CEPHALA. The Figure-of-eight Moth appears early in October. The bluish-grey upper wings have a yellowish-white spot in their centres. The spot being shaped like a double kidney, or 8, gives the popular name to the insect. It should be de-



stroyed whenever observed, as its caterpillars, at the end of the following spring,

very often destroy the young leaves of plums and peaches.

ERA'NTHEMUM. (From *erao*, to love, and *anthos*, a flower; referring to the beauty of the flowers. Nat. ord., *Acanthads* [*Acanthaceæ*]. Linn., 2-*Diandria* 1-*Monogynia*.)

Cuttings of points of shoots when a little firm, in sandy loam, in bottom-heat, under a hand-glass; peat one part, loam two parts. Summer temp., 60° to 75°; winter, 45° to 55°.

E. acanthophorum (thorny). Lilac. July. China. 1822.

— *albiflorum* (white-flowered). 2½. White. July.

— *ambiguum* (doubtful). 2. Red. July. 1821.

— *Barlerioides* (Barleria-like). Blue. August. E. Ind. 1824.

— *bicolor* (two-coloured). ¾. White, red. July. Lucona. 1802.

— *Capeense* (Cape). 1. Purple. May. E. Ind. 1818.

— *crenulatum* (scalloped). 1. Lilac. October. Nepaul. 1824.

— *elegans* (elegant). 3. Scarlet. June. Guinea. 1824.

— *fœcundum* (ever-blowing). 1½. Lilac. June. Brazil. 1829.

— *montanum* (mountain). 2. Lilac, purple. March. Ceylon. 1843.

— *puleholum* (pretty). 2. Blue. April. E. Ind. 1795.

— *racemosum* (racemed). Blush. August. E. Ind. 1826.

— *roseum* (rosy). 2. Red. May. E. Ind. 1820.

— *spinosum* (spined). 3. July. W. Ind. 1733.

— *strictum* (erect). 2. Purple. April. Nepaul. 1818.

— *variabile* (variable). 2. Purple. June. N. Holland. 1820.

ERA'NTHIS. Winter Aconite. (From *er*, spring, and *anthos*, a flower; referring to its early flowering. Nat. ord., *Crowfoots* [*Ranunculaceæ*]. Linn., 13-*Polyandria* 6-*Polygynia*.)

Hardy tubers; offsets; common soil.

E. hyemalis (common winter). ¾. Yellow. February. Italy. 1596.

— *Sibirica* (Siberian). ¾. Yellow. March. Siberia. 1826.

EREMEA. (From *eremos*, solitary; referring to the female organ, or solitary style. Nat. ord., *Myrtleblooms* [*Myrtaceæ*]. Linn., 18-*Polyadelphia* 2-*Polyandria*. Allied to *Metrosideros*.)

Greenhouse evergreens, from Swan River. Cuttings of young shoots in April or May, in sand, under a bell-glass; peat one part, and loam two parts. Winter temp., 35° to 45°.

E. ericifolia (heath-leaved). White. June.

— *fimbriata* (fringed-flowered). Purple. June. 1841.

— *pilosa* (hairy). Pink. June. 1842.

EREMIA. (From *eremos*, solitary; referring to the seed being but one in a cell. Nat. ord., *Heathworts* [*Ericaceæ*]. Linn., 8-*Octandria* 1-*Monogynia*. Allied to *Erica*.)

Greenhouse evergreen, from Cape of Good Hope. Cuttings of the points of shoots when fresh growth has extended beyond one inch; sandy peat. Winter temp., 35° to 45°.

E. Toftia (Hottentot). 2. Red. June. 1810.

EREMU'RUS. (From *eremos*, solitary, and *oura*, tail; referring to the flower-spike. Nat. ord., *Lilyworts* [*Liliaceæ*]. Linn., 6-*Hexandria* 1-*Monogynia*. Allied to *Asphodel*.)

Hardy herbaceous perennial, with yellow flowers. Divisions; sandy loam.

E. Caucausicus (Caucasian). May. Caucasus. 1834.

— *spectabilis* (beautiful). 2. May. Siberia. 1800.

E'RIA. (From *erion*, wool; referring to the down on the leaves of some of the species. Nat. ord., *Orchids* [*Orchidaceæ*]. Linn., 20-*Gynandria* 1-*Monandria*. Allied to *Dendrobium*.)

Stove orchids. Divisions; fibry peat and chopped, decayed moss; the plant to be raised, roots and all, above the surface of the pot or shallow basket. Summer temp., 60° to 90°, with plenty of moisture; winter, 50° to 55°, dry.

E. clavicaulis (club-stemmed). White, yellow. Chirra. 1837.

— *excavata* (hollowed). Nepaul.

— *floribunda* (many-flowered). 1. White, crimson. Singapore. 1842.

— *longicaulis* (long-stemmed). White. Chirra. 1837.

— *longilabris* (long-lipped). White, purple. Philippines. 1838.

— *paniculata* (panicled). Greenish-yellow. E. Ind.

— *polyura* (many-tailed). Pink, purple, yellow. Manilla.

— *pulehilla* (pretty). Yellow. India. 1840.

— *stellata* (starred). 2. Yellowish-red. February. Java.

— *vestita* (clothed). 1. Red, brown. India. 1842.

ERI'CA. Heath. (From *erico*, to break; referring to the brittle nature of the wood. Nat. ord., *Heathworts* [*Ericaceæ*]. Linn., 8-*Octandria* 1-*Monogynia*.)

All natives of the Cape of Good Hope, except where otherwise mentioned. Cuttings of the points of shoots, when fresh growth enables the handling of them easily, inserted in sand, the pots previously being half-filled with drainage, and then filled with sandy peat, in various degrees of fineness—the rough over the drainage, the fine at the top, all surmounted by, at least, half an inch of silver sand, well pressed and watered, and pressed again a day before using, and then covered with a bell-glass, and set in a close pit or frame. Some slow-growing kinds require to be put into heat, in order to get cuttings. Sandy peat for all, especially the slow-growing, using plenty of drainage; for the very strong-growing, a very little fibry loam may be used. In potting from the cutting-pots, it is best to place three or four round the sides of small pots for the first winter, singling them out, and then keeping them close the following spring, hardening them off by degrees; as larger pots are wanted, pieces of charcoal and sandstone are valuable for keeping the soil open. The pots, if set out of doors, should

be protected from the sun in summer; if plunged, drainage should be secured by setting the pot on bricks. Winter temp., 35° to 45°, with abundance of air.

HARDY EVERGREEN.

- E. arbores* (tree). 5. White. May. South Europe. 1638.
 — *minima* (least). White. April. South Europe.
 — *squarrosa* (spreading). 4. White. April. South Europe. 1800.
 — *stylota* (long-styled). 5. White. May. South Europe. 1658.
 — *carnea* (flesh-coloured). $\frac{1}{2}$. Pale purple. February. Germany. 1763.
 — *herbacea* (herbaceous). $\frac{1}{2}$. Pink. February. Germany.
 — *herbacea* (herbaceous). Flesh. May. South Europe. 1763.
 — *Mackiana* (Mackie's). Purple. July. Ireland.
 — *Mediterranea* (Mediterranean). 4. Purple. April. Portugal. 1648.
 — *stamina* (bent-back-stemmed). 2. Red. June. 1799.
 — *viridipurpurea* (green and purple). 3. Green, purple. May. Portugal.

GREENHOUSE EVERGREEN.

- E. acuminata* (pointed-leaved). 1 $\frac{1}{2}$. Red. August. 1800.
 — *pallida* (pale). 1. Pale red. June. 1820.
 — *acuta* (pointed-cupped). $\frac{1}{2}$. Red. June. 1799.
 — *Aitoniana* (Aiton's). 2. White, purple. August. 1790.
 — *albida* (whitish). 2. White. July. 1826.
 — *ameana* (pleasing). 1. Purple. June. 1795.
 — *ampullacea* (flask-shape-flowered). 2. White, red. June. 1790.
 — *Andromedæiflora* (Andromeda-flowered). 2. Pink. May. 1803.
 — *arbuscula* (shrubby). 1. Red. May. 1810.
 — *Archeriana* (Lady Archer's). 1 $\frac{1}{2}$. Dark scarlet. September. 1796.
 — *ardens* (glowing). 2. Scarlet. May. 1800.
 — *aristata* (awned). 1 $\frac{1}{2}$. Purple, white. June. 1801.
 — *assurgens* (rising). 1. White. May. 1821.
 — *auræa* (golden). 2. Orange. August. 1799.
 — *azaleæifolia* (azalea-leaved). Lilac. June. 1798.
 — *Bandoniana* (Bandon's). 2. Purple. July. 1810.
 — *Banksiana* (Bank's). $\frac{1}{2}$. White, purple. April. 1789.
 — *albida* (white). $\frac{1}{2}$. White. June. 1812.
 — *purpurea* (purple). $\frac{1}{2}$. Purple. June. 1800.
 — *Beaumontiana* (Beaumont's). $\frac{1}{2}$. Purple. June. 1820.
 — *Bergiana* (Bergius's). 1 $\frac{1}{2}$. Purple. June. 1787.
 — *bicolor* (two-coloured). 2. Green, red. June. 1790.
 — *blanda* (Rollinson's charming). 2. Purple, orange. May. 1798.
 — *Blandfordiana* (Blandford's). 1 $\frac{1}{2}$. Yellow. May. 1803.
 — *Bonplandiana* (Bonpland's). 1. Pale yellow. July. 1812.
 — *Bowieana* (Bowie's). 1. White. October. 1822.
 — *brevifolia* (short-leaved). 1. April. 1800.
 — *Caffra* (Caffrarian). 1 $\frac{1}{2}$. White. May. 1802.
 — *spicata* (spiked). 1 $\frac{1}{2}$. White. September. 1800.
 — *Caledonica* (Caledonian). Rose. June. 1816.
 — *campanulata* (bell-flowered). 1. Yellow. June. 1791.
 — *campylophylla* (crooked-leaved). Lilac. April. 1802.
 — *caneescens* (hoary). 1 $\frac{1}{2}$. Pink. June. 1790.

- E. carinata* (keeled). 1 $\frac{1}{2}$. Purple. September. 1820.
 — *Celsiana* (Cels's). 1. Orange, rose. May. 1810.
 — *cerinthoides* (honeywort-like). Dark scarlet. September. 1774.
 — *maior* (larger). 4. Scarlet. May. 1800.
 — *nanus* (dwarf). 1. Scarlet. May. 1800.
 — *cinerascens* (grey-leaved). 1. Purple. May. 1810.
 — *Cliffordiana* (Lady Clifford's). 1. White. April. 1812.
 — *coccinea* (scarlet). 1 $\frac{1}{2}$. Scarlet. 1783.
 — *colorans* (colouring). 2. White, red. May. 1817.
 — *comosa* (tufted). $\frac{1}{2}$. Red. June. 1787.
 — *alba* (white). $\frac{1}{2}$. White. June. 1787.
 — *rubra* (red). $\frac{1}{2}$. Red. June. 1787.
 — *Comptoniana* (Compton's). 2. Purple. June. 1802.
 — *concinna* (neat). 2 $\frac{1}{2}$. Flesh. September. 1773.
 — *concolora* (one-coloured). 2. June. 1820.
 — *conica* (conical). 2. Purple. June. 1820.
 — *conspicua* (conspicuous). 2. Dark yellow. July. 1774.
 — *Coventryana* (Lord Coventry's). 1. Pink. May. 1801.
 — *crassifolia* (thick-leaved). Lilac. May. 1826.
 — *culbica* (cube-flowered). 1. Purple. May. 1790.
 — *maior* (larger). 1. Purple. June. 1800.
 — *curviflora* (curve-flowered). 2. Yellow. August. 1774.
 — *rubra* (red). 2. Red, August. 1800.
 — *Cushiniana* (Cushin's). 2. September. 1816.
 — *Daphnoides* (Daphne-like). 2. White. May.
 — *decepiens* (deceiving). Flesh. May. 1822.
 — *decofra* (graceful). 2. Purple. June. 1790.
 — *densa* (closely-leaved). 1 $\frac{1}{2}$. Red. June. 1810.
 — *denticulata* (small-toothed). 1 $\frac{1}{2}$. Purple. April. 1821.
 — *depressa* (depressed). $\frac{1}{2}$. Yellow. July. 1789.
 — *dichroma* (two-coloured). 3. Yellow, pink. August. 1800.
 — *Dicksoniana* (Dickson's). 2. Yellow. June. 1809.
 — *alba* (white). 2. White. June. 1809.
 — *rubra* (red). 2. Red. May. 1809.
 — *distans* (distant). Violet. November. 1822.
 — *diosmaeflora* (diosma-flowered). 2. May. 1792.
 — *droseroides* (drosera-like). Purple. August. 1788.
 — *dumosa* (bushy). 1. Purple. May. 1812.
 — *echiniflora* (echium-flowered). 1 $\frac{1}{2}$. Scarlet. April. 1798.
 — *coccinea* (scarlet). 1. Scarlet. April. 1812.
 — *elegans* (elegant). $\frac{1}{2}$. Green. August. 1799.
 — *epistomia* (spout-flowered). 2. Yellow, green. May. 1810.
 — *eriocephala* (woolly-headed). White. July. 1816.
 — *erubescens* (blushing). 1 $\frac{1}{2}$. Flesh. May. 1800.
 — *eximia* (choice). 2. Scarlet. June. 1800.
 — *expansa* (expanded). 1. Scarlet. July. 1818.
 — *exposita* (exposed). Red. August. 1820.
 — *assurgens* (rising). 1 $\frac{1}{2}$. Dark orange. 1792.
 — *carnea* (flesh-coloured). 1. Orange. 1800.
 — *grandiflora* (large-flowered). 1. Orange. 1800.
 — *maior* (larger). 1. Orange. 1800.
 — *pallida* (pale). 1. Pale red. 1810.
 — *Eweriana* (Ewer's). 2. Pink. August. 1793.
 — *longiflora* (long-flowered). 2. Red. June. 1793.
 — *speciosa* (showy). 2. Red. August. 1733.
 — *fasciculata* (parcel-flowered). 1 $\frac{1}{2}$. Purple. April. 1787.
 — *fastigiata* (peaked). 1 $\frac{1}{2}$. White. July. 1797.
 — *ferruginea* (rusty). 1. Red. May. 1793.
 — *flammea* (flame-flowered). 1 $\frac{1}{2}$. Light yellow. June. 1798.

E. flava (yellow). 2. Yellow. July. 1795.
 — *imbricata* (imbricated). 2. Yellow. July. 1795.
 — *floribunda* (bundle-flowered). 1. Pale pink. May. 1800.
 — *florida* (florid). 1. Red. June. 1803.
 — *moschata* (musky). 1. Red. May.
 — *formosa* (handsome). 2. Red. August. 1795.
 — *alba* (white). 2. White. August. 1795.
 — *fragrans* (fragrant). 2. Purple. April. 1803.
 — *gelida* (ice-cold). 3. Green, white. June. 1799.
 — *albena* (whitish). 2. White. June. 1820.
 — *gemmifera* (many-budded). Orange. August. 1820.
 — *globosa* (globe-flowered). 1½. Pink. August. 1789.
 — *glomiflora* (crowded-flowered). White. June.
 — *gracilis* (slender). 1. Purple, red. March. 1794.
 — *grandiflora* (large - flowered). 3. Yellow. July. 1785.
 — *humilis* (lowly). 2. Yellow. May. 1806.
 — *grandinosa* (hail-stone). ½. White. March. 1810.
 — *halicacaba* (red nightshade). 1. Yellow. June. 1780.
 — *Hartnelli* (Hartnell's). 2. Purple. July. 1820.
 — *Hibbertiana* (Hibbert's). 2. Orange, yellow. July. 1800.
 — *hispidula* (short-bristled). Purple. July. 1790.
 — *Humeana* (Sir A. Hume's). 1½. Pink. March. 1808.
 — *igneascens* (glowing). 1½. Red. May. 1792.
 — *imperialis* (imperial). 2. Scarlet. June. 1802.
 — *incana* (hoary). 1½. White. July. 1810.
 — *rubra* (red-flowered). 1½. Red. July. 1810.
 — *inflata* (swollen). 1½. White, red. July. 1809.
 — *infundibuliformis* (funnel-shaped). 2. Pale red. September. 1802.
 — *Irbyana* (Irby's). 1½. White, green. August. 1800.
 — *jasmiflora* (jasmine-flowered). 2. White, pink. August. 1794.
 — *alba* (white). 2. White. August.
 — *juba'ta* (maned). 2. August. 1800.
 — *Julia* (July). 3. Red. July. 1800.
 — *lachnastia* (lachnæ-leaved). 1½. White. June. 1793.
 — *Lambertiana* (Lambert's). 1. White. June. 1800.
 — *laricina* (larch-like). Pink. July. 1824.
 — *Lawsoni* (Lawson's). 3. Flesh. May. 1802.
 — *Leca* (Lee's). 2½. Orange, yellow. April. 1788.
 — *leptocarpa* (slender-berried). Red. June. 1824.
 — *Linnæana* (Linnæan). 1½. Purple, white. March. 1790.
 — *Linnæoides* (Linnæa-like). 1½. Purple, red. April. 1812.
 — *longiflora* (long-flowered). 2. Red, orange. May. 1812.
 — *longipedunculata* (long-flower-stalked). 1. Pink. July. 1805.
 — *lutea* (yellow). 3. Pale yellow. March. 1774.
 — *mammosa* (nippled). 2. Purple. August. 1762.
 — *minor* (smaller). 1. Purple. August. 1800.
 — *Massoni* (Masson's). 3. Red, green. August. 1787.
 — *minor* (smaller). 1. Red, green. August.
 — *melastoma* (black-mouthed). 2. Red, brown. June. 1795.
 — *metuliflora* (ninepin - flowered). 1. Red. April. 1793.
 — *minutiflora* (small-flowered). Purple. June. 1822.

E. mirabilis (admirable). 1. Purple. May. 1800.
 — *mollensis* (soft). Purple. June. 1803.
 — *Monsoniana* (Lady Monson's). 4. White. July. 1787.
 — *moschata* (musky). 1½. Green. June. 1805.
 — *mundula* (neatish). 2. Purple. June. 1810.
 — *major* (larger). 2. Purple. June. 1810.
 — *muscosoides* (muscosa-like). Lilac. May. 1800.
 — *nivalis* (snowy). White. June. 1820.
 — *nivea* (snowy). 2. White. April. 1816.
 — *oblata* (flattened). Red, white. June. 1796.
 — *oblitqua* (twisted-leaved). 1½. Purple. August. 1800.
 — *oblonga* (oblong). Red. July.
 — *obtusula* (blunt-leaved). 1. Purple. September. 1789.
 — *odora'ta* (perfumed). 1. Pink. June. 1829.
 — *orbata* (globular). White. 1810.
 — *ovalifolia* (oval-leaved). White, pink. North India. 1842.
 — *ovata* (egg-shape-flowered). 1. Purple. June. 1811.
 — *palmistris* (marsh). 1. Flesh. July. 1799.
 — *Parmentieriana* (Parmentier's). 1. Pale purple. July. 1810.
 — *rosea* (rosy). 1. Red. July. 1810.
 — *Paterosonia* (Paterson's). 2½. Yellow. May. 1791.
 — *major* (larger). 3. Yellow. May.
 — *Paterosonioides* (Patersonia-like). 2. Orange, red. June. 1800.
 — *pellucida* (clear). 2. White. September. 1800.
 — *peltata* (shield-leaved). Green, purple. July. 1804.
 — *persoluta* (garland-flowered). 1½. Purple. April. 1774.
 — *alba* (white). 1. White. March. 1800.
 — *perspicua* (clear-flowered). 2. White, purple. May. 1790.
 — *na'na* (dwarf). 1. Pink. April. 1800.
 — *Petivieri* (Petiver's). 2. Yellow. May. 1774.
 — *coccinea* (scarlet). 2. Scarlet. May.
 — *Peziza* (Peziza). 1. White. June. 1812.
 — *physoides* (puffed-out). 1½. White. May. 1788.
 — *pillularis* (pill-like). White. November. 1820.
 — *pinæa* (pine-leaved). 2. Red. October. 1790.
 — *discolor* (two-coloured). 2. Red. October.
 — *fanoides* (honeycomb-like). 2. Red. October.
 — *pulchella* (pretty). 2. Red. October.
 — *Plukenetii* (Plukenet's). ½. Red. May. 1774.
 — *pa'llida* (pale). 1. Pale red. June. 1794.
 — *prægnans* (swelled). 2. Red. August. 1796.
 — *præstans* (excelling). 1. White. August. 1810.
 — *primuloides* (cowslip-like). ½. Purple, red. May. 1802.
 — *princeps* (princely). 1½. Scarlet. June. 1800.
 — *carnea* (flesh-coloured). 1. Flesh. June. 1804.
 — *procera* (lofty). 6. White. May. 1791.
 — *prope'ndens* (forward-hanging). 1½. Purple. July. 1800.
 — *pulchella* (pretty). 1½. Red. July. 1792.
 — *pulverulenta* (powdered). 1. Purple. July. 1820.
 — *pumila* (dwarf). 1. Purple. June. 1812.
 — *purpurea* (purple). 2. Light purple. 1789.
 — *pyramidalis* (pyramidal). 1½. Pink. March. 1787.
 — *racemosa* (racemed). 1½. Pink. April. 1795.
 — *radiata* (rayed). 1. Crimson. September. 1798.
 — *ramentacea* (scaly). 1½. Dark red. September. 1786.
 — *refulgens* (refulgent). 2. Scarlet. May. 1800.
 — *regeminas* (resprouting). 1½. Red. June. 1791.

- E. retorta* (curled-back-leaved). 1. Pink, white. June. 1787.
 — *Rollinsii* (Rollinson's). 2. Purple. June. 1820.
 — *rubella* (reddish). 2. Pink. June. 1814.
 — *rubens* (red). 1. Dark red. July. 1810.
 — *rubrose-pala* (red-sepaled). Red, white. June. 1825.
 — *Russelliana* (Russell's). 1½. Pink. May. 1820.
 — *Salisburyana* (Salisbury's). Rose. June. 1815.
 — *Sainsburyana* (Sainsbury's). 2. Purple. July. 1800.
 — *sanguinea* (bloody). 1. Crimson. 1815.
 — *Savileana* (Savile's). ¾. Red. June. 1800.
 — *scutrinuscula* (roughish). 1. White. May. 1805.
 — *Sebaana* (Seba's). 2. Orange. April. 1774.
 — *fulsca* (brown). 2. Brown. May. 1812.
 — *luttea* (yellow). 2. Yellow. May. 1800.
 — *minor* (smaller). 1. Orange. May. 1810.
 — *Shannoniana* (Lady Shannon's). 1½. White, purple. June. 1816.
 — *Smithiana* (Smith's). 2. Purple. April. 1791.
 — *Solanderiana* (Solander's). 2. Pink. June. 1800.
 — *speciosa* (showy). 2. Red, green. July. 1800.
 — *splendens* (shining). 2. Scarlet. July. 1792.
 — *Sprengelii* (Sprengel's). 2. Yellow, purple. June. 1806.
 — *spurius* (spurious). 2. Purple. June. 1796.
 — *squamiflora* (scaly-flowered). 2. April. 1796.
 — *stricta* (erect). 2. Purple. September. South Europe. 1795.
 — *sweet-scented* (sweet-scented). 1. Pink. August. 1800.
 — *sulphurea* (sulphur-coloured). 2. Yellow. June. 1805.
 — *Swainsonii* (Swainson's). 2. Red, purple. August. 1794.
 — *taxifolia* (yew-leaved). Pink.
 — *Templeana* (Temple's). 2. Red. Purple. July. 1820.
 — *tenuella* (delicate). ¼. Purple. June. 1791.
 — *Thunbergiana* (Thunberg's). 1½. Orange. June. 1794.
 — *thymifolia* (thyme-leaved). ¾. Purple. July. 1789.
 — *toga* (gowned). ¾. Red. June.
 — *tomentosa* (downy). 2. Purple. June. 1778.
 — *tortuosa* (twisted). 2. May. 1816.
 — *translucens* (clear). 2. Red. June. 1797.
 — *transparentis* (transparent). 1½. White. May. 1800.
 — *blanda* (charming). Carmine. February. 1843.
 — *tricolor* (three-coloured). 2. Red, green. June. 1810.
 — *major* (larger). 2. Red, green. June. 1810.
 — *minor* (smaller). 1. Red, green. June. 1810.
 — *triflora* (three-flowered). 1½. White. April. 1774.
 — *triumphans* (conquering). 2. White. April. 1803.
 — *troscula* (spruce). 1½. White, pink. April. 1800.
 — *rubra* (red). 1. Red. April. 1810.
 — *tubiflora* (tube-flowered). 2. Pink. May. 1775.
 — *tumida* (swollen). 1½. Scarlet. July. 1812.
 — *turgida* (bloated). 1. Purple. May. 1821.
 — *varia* (various). 1. Purple, yellow. July. 1810.
 — *ventricosa* (bellied). 1. Flesh. June. 1787.

- E. ventricosa alba* (white). 1. White. June.
 — *calnea* (flesh-coloured). 1. Flesh. June.
 — *coccinea* (scarlet). 1. Scarlet. June.
 — *erecta* (erect). 1. Flesh. June.
 — *hirsuta* (hairy). 1. Flesh. June.
 — *nantha* (dwarf). ¾. Flesh. June.
 — *superba* (superb). 1. Scarlet. June.
 — *vernalis* (spring). 3. Pink. March. 1827.
 — *versicolor* (various-coloured). 2. Orange, red. August. 1720.
 — *major* (larger). 2. Scarlet. September. 1800.
 — *verticillata* (whorled). 3. Scarlet. August. 1774.
 — *major* (larger). 2. Scarlet. September. 1800.
 — *vestita* (clothed). 3. White. 1789.
 — *alba* (white). 2. White. 1789.
 — *blanda* (charming). 2½. Pink. May. 1827.
 — *coccinea* (scarlet). 3. Scarlet. 1789.
 — *elegans* (elegant). 2. Purple. 1810.
 — *fulgida* (bright). 3. Orange. 1789.
 — *incarnata* (flesh-coloured). 2. Pink. 1779.
 — *luttea* (yellow). 3. Yellow. 1789.
 — *mutabilis* (changeable). 3. Scarlet, white. 1800.
 — *purpurea* (purple). 2. Purple. June. 1789.
 — *rosea* (rosy). 3. Light red. August. 1789.
 — *viridiflora* (dark-green-flowered). 2. Orange. July. 1810.
 — *viridis* (green-flowered). 2½. Dark green. July. 1800.
 — *Walkeriana* (Walker's). Red. July. 1806.
 — *Zeyheri* (Zeyher's). Lilac. June. 1824.

ERIGERON. (From *er*, the spring, and *geron*, old man; some being hoary with a downy covering early in the season. Nat. ord., *Compositæ* [Asteracæ]. Linn., 19-Syngenesia 1-Æqualis. Allied to *Stenactis*.)

Seeds and divisions; garden-soil.

HARDY ANNUALS.

- E. Bonariensis* (Buenos Ayres). 1½. Purple. July. S. Amer. 1732.
 — *Canadensis* (Canadian). 1. White. August. England.
 — *Chinensis* (Chinese). 1. White. August. China. 1813.
 — *foetidum* (stinking). Yellow. June. Malta. 1688.
 — *graveolens* (strong-smelling). 1½. Yellow. July. South Europe, 1633.
 — *linifolius* (flax-leaved). 1. Purple. July. S. Amer.

HARDY BIENNIALS.

- E. acris* (sharp). 1½. Blue. July. Britain.
 — *Chilensis* (Chili). 2½. Yellow. September. Chili. 1816.
 — *delphinifolius* (lark-spur-leaved). 1½. Purple. August. S. Amer. 1816. Greenhouse.
 — *divaricatus* (straggling). 1. White. August. Mississippi. 1818.
 — *lavigatus* (smooth-leaved). 1. White. July. Cayenne. 1822.
 — *Podolius* (Podolian). 1. Purple. July. Podolia. 1821.

HARDY PERENNIALS.

- E. alpinus* (alpine). 1. Purple. July. Scotland.
 — *armeriaefolius* (thrift-leaved). Purple. July. Barcelona. 1829.

- E. asper* (rough). Purple. August. N. Amer. 1828.
 — *asteroides* (aster-like). 1½. White. July. Hudson's Bay. 1776.
 — *Atticus* (Attic). 1½. Purple. July. Attica. 1816.
 — *bellidifolius* (daisy-leaved). 1½. Purple. July. N. Amer. 1790.
 — *Carolinianus* (Carolinian). 1. Purple. July. N. Amer. 1727.
 — *Caucasicus* (Caucasian). ¾. Purple. July. Caucasus. 1821.
 — *compositus* (composite). ½. White, red. July. N. Amer. 1811.
 — *gramineus* (grass-like). ¾. Purple. July. Siberia. 1824.
 — *grandiflorus* (large-flowered). ¾. Purple. July. Switzerland. 1819.
 — *humilis* (humble). ½. Flesh. August. N. Amer. 1823.
 — *Lehmanni* (Lehmann's). Lilac. August. 1828.
 — *maximum* (largest). Purple. July. Mexico. 1830. Half-hardy.
 — *Philadelphicus* (Philadelphian). 1. Purple. July. N. Amer. 1778.
 — *pubescens* (downy). White. July. Mexico. 1827.
 — *puicellum* (pretty). Purple. April. Dahuria. 1818.
 — *pu'milum* (dwarf). White. August. Dahuria. 1818.
 — *purpureus* (purple). 1. Purple. August. Hudson's Bay. 1776.
 — *rupestris* (rock). ¾. Purple. July. Switzerland. 1819.
 — *speciosum* (handsome). Blue. June. California. 1838.
 — *Villarsii* (Villars's). 1. Purple. July. Piedmont. 1804.

ERINOSMA. (From *er*, the spring, and *osme*, to smell; referring to the early flowering of this sweet-scented bulb. Nat. ord., *Amaryllids* [*Amaryllidaceæ*]. Linn., 6-*Hexandria* 1-*Monogynia*. Allied to *Galanthus*.)

Once called *Leucorum vernum*. Hardy bulb, with white flowers; offsets; light garden-soil.

- E. vernum* (spring). ¾. February. Germany. 1596.
 — *Carpaticum* (Carpathian). ¾. February. Carpathian Mountains. 1816.
 — *multiflorus* (full-flowered). ¾. March.

ERINUS. (From *er*, the spring; referring to the early time of flowering. Nat. ord., *Figworts* [*Scrophulariaceæ*]. Linn., 14-*Didynamia* 2-*Angiospermia*. Allied to *Wulfenia*.)

Half-hardy plants. Seeds and divisions; mostly require the protection of a cold pit in winter. Succeed well as rock-plants in summer, if the soil is sandy loam.

HERBACEOUS PERENNIALS.

- E. alpinus* (smooth alpine). ¾. Blue. March. Pyrenees. 1739.
 — *Hispanicus* (hairly. Spanish). ¾. Red. March. Spain. 1739.

EVERGREENS.

- E. fragrans* (fragrant). ¾. White, yellow. May. Cape of Good Hope. 1776.
 — *Lychnidea* (Lychnidea). ½. Yellow, white. May. Cape of Good Hope.

- E. trietis* (dark-flowered). 1. Purple. May. Cape of Good Hope. 1825.

ERIOBOTRYA. Loquat. (From *erion*, wool, and *botrys*, a bunch of grapes; referring to the downy flower-racemes. Nat. ord., *Appleworts* [*Pomaceæ*]. Linn., 12-*Icosandria* 2-*Digynia*. Allied to *Photima*.)

Half-hardy evergreen fruit-trees, with white flowers. Cuttings of side-shoots, from one to two inches in length, in sand, under a bell-glass, and in a few days placed in bottom-heat; by seeds in a hotbed as soon as gathered; also by grafting on the White Thorn, or, better still, on the Quince. Peat and loam; will grow against a wall with a protection in winter; has been fruited in pots by turning it out to rest in summer, giving a stove heat in winter, when it flowered in December, and fruited in April.

- E. elliptica* (oval-fruited). 12. Nepaul. 1823.
 — *Japo'nica* (Japanese). 15. October. Japan. 1787.

ERIOCAULON. Pipewort. (From *erion*, wool, and *caulos*, a stem. Nat. ord., *Pipeworts* [*Eriocaulaceæ*]. Linn., 3-*Triandria* 3-*Trigynia*.)

The only known European Pipewort is *E. septangulare*, a small bog or marsh-plant in the Isle of Skye. There are five other species, but all more curious than beautiful.

ERIOCEPHALUS. (From *erion*, wool, and *kephale*, a head; referring to the appendage. Nat. ord., *Composites* [*Asteraceæ*]. Linn., 19-*Syngenesia* 4-*Necessaria*.)

Greenhouse evergreens, from the Cape of Good Hope. Cuttings of young shoots, getting firm, in April, in sand, under a glass; sandy loam and a little peat. Winter temp., 38° to 45°.

- E. decussatus* (crossed). 4. Yellow. April. 1816.
 — *purpureus* (purple). 4. Purple. April. 1816.
 — *racemosus* (racemed). 3. Yellow. March. 1739.

ERIOCHA'SMA. (From *erion*, wool, and *chasme*, a rent; referring to the spore-cases. Nat. ord., *Ferns* [*Polypodiaceæ*]. Linn., 24-*Cryptogamia* 1-*Filices*.)

Ferns, with brown or brownish-yellow spores. Division, before fresh growth commences; peat and loam. Summer temp., 60° to 80°; winter, 50° to 55°. The greenhouse species will do with 5° to 10° lower temperature. *E. vestita* is hardy.

GREENHOUSE.

- E. distans* (distant). ¾. May. Wales. 1823.
 — *hi'ta* (hairly). ¾. May. Cape of Good Hope. 1816.
 — *stellipilis* (starry-haired). May. N. S. Wales. 1840.
 — *sulcata* (furrowed). May. N. S. Wales.
 — *vestita* (clothed). ¾. August. America. 1812. Hardy.

STOVE.

- E. hypoleuca* (white-beneath). July. W. Ind.
 — *lanuginosa* (woolly). ¾. July. Bourbon. 1818.
 — *ru'fa* (reddish). August. W. Ind. 1830.
 — *tomentosa* (woolly). May. N. S. Wales. 1843.

ERIOCHILUS. (From *erion*, wool, and *cheilos*, a lip; downy on the labellum, or

lip. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-*Gynandria* 1-*Monandria*.)

Ground orchids, from Australia. Divisions; peat and loam, both fibry, with a portion of sand and lumps of charcoal. Winter temp., 40° to 50°.

E. autumnalis (autumnal). 1. Red. October. 1823.

— *dilatatus* (dilated). May.

— *latifolius* (broad-leaved). October.

— *multiflorus* (many-flowered). March.

— *scaber* (rough). September.

ERIOCOMA. (From *erion*, wool, and *kome*, hair; referring to the appendage on the seed of Composites. Nat. ord., *Composites* [Asteraceæ]. Linn., 19-*Syngenesia* 3-*Frustranea*. Allied to *Rudbeckia*.)

Half-hardy evergreens, with white flowers, from Mexico. Cuttings in May, in sandy soil, under a hand-light; sandy loam. Winter temp., 35° to 40°.

E. floribunda (many-flowered). 3. October. 1823.

— *fragrans* (fragrant). 3. September. 1828.

ERIOEDRON. (From *erion*, wool, and *dendron*, a tree; referring to the silky wool in seed-pods. Nat. ord., *Sterculiads* [Sterculiaceæ]. Linn., 16-*Monadelphia* 8-*Polyandria*. Allied to *Bombax*.)

Stove trees; seeds in a hotbed; rich, sandy loam. Summer temp., 60° to 80°; winter, 50° to 55°.

E. anfractuosum (winding). 100. Scarlet. E. Ind. 1739.

— *Caribæum* (Caribbean). 70. Cream. W. Ind. 1739.

— *Guineænsis* (Guinea). 150. Scarlet. Guinea. 1826.

— *leianthærum* (smooth-flowered). 70. Scarlet. Brazil. 1818.

ERIOGONUM. (From *erion*, wool, *gonu*, a joint; downy at the joints of the stems. Nat. ord., *Buckwheats* [Polygonaceæ]. Linn., 9-*Enneandria* 1-*Monogynia*. Allied to *Polygonium*.)

Hardy herbaceous perennials with yellow flowers, from North America. Seeds and divisions in March and April; loam and a little peat.

E. compositum (compound). 1½. June.

— *longifolium* (long-leaved). 2. June. 1822.

— *pauciflorum* (few-flowered). 2. June. 1820.

— *sericeum* (silky). 1. July. 1811.

— *tomentosum* (woolly). 2. May. 1811.

ERIOPHORUM. Cotton Grass. (From *erion*, wool, and *phoreo*, to bear; in reference to the silky tails or coverings of the seeds. Nat. ord., *Sedges* [Cyperaceæ]. Linn., 3-*Triandria* 1-*Monogynia*.)

With the exception of the Sundews, the Cotton Grasses are the prettiest genus in the British Flora, particularly *E. capitatum* and *vaginatum*. They are natives of peat marshes, and do not belong to Grasses, though erroneously so called.

ERIOPHYLLUM. (From *erion*, wool, and *phyllon*, a leaf; woolly-leaved. Nat. ord., *Composites* [Asteraceæ]. Linn., 19-*Syngenesia* 2-*Superflua*.)

Hardy evergreens, from North America. Divisions of the roots in spring; common soil.

E. caespitosum (turfy). 1. Yellow. May. 1826.

— *oppositifolium* (opposite-leaved). 1½. Yellow.

ERIOPSIS. (From *Eria*, a genus of orchids, and *opsis*, like. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-*Gynandria* 1-*Monandria*.)

Stove orchid. Division; fastened to wood with a little moss. Summer temp., 60° to 90°; winter, 55° to 60°.

E. biloba (two-lobed). 1½. Orange. September. 1845.

ERIOSPERMUM. (From *erion*, wool, and *spermis*, a seed; woolly-seeded. Nat. ord., *Lilyworts* [Liliaceæ]. Linn., 6-*Hexandria* 1-*Monogynia*. Allied to *Anthericum*.)

Greenhouse bulbs from Cape of Good Hope. Offsets; sandy peat. Winter temp., 35° to 45°.

E. Bellendæni (Bellenden's). 1. Light blue. July. 1806.

— *folioliferum* (leaflet-bearing). 3. Yellow, green. July. 1806.

— *lanceolatum* (spear-head-leaved). 1. Light blue. July. 1795.

— *lanuginosum* (woolly). 1. White, green. July. 1820.

— *latifolium* (broad-leaved). 1. Light blue. July. 1800.

— *paradozum* (wonderful). 1. July. 1825.

— *parvifolium* (small-leaved). 3. Dark blue. July. 1796.

— *pubescens* (downy). 1. White, green. July. 1820.

ERIOSTEMA. (From *erion*, wool, and *sema*, a standard; referring to the top petal, or standard, in a pea-flower. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 17-*Diadelphia* 4-*Decandria*. Allied to *Rhynchosia*.)

Stove evergreen shrubs. Seeds in March; cuttings in April, in sand, under a glass, and in heat; peat and loam. Summer temp., 60° to 75°; winter, 48° to 55°.

E. grandiflora (large-flowered). 2. Yellow. August. Mexico.

— *violacea* (violet). 4. Purple. March. Guiana. 1820.

ERIOSTEMON. (From *erion*, wool, and *stemon*, a stamen; appearance of stamens. Nat. ord., *Rueworts* [Rutaceæ]. Linn., 10-*Decandria* 1-*Monogynia*. Allied to *Crowea*.)

Greenhouse evergreens, from New Holland. Cuttings of young shoots in April, in sand, under a bell-glass, and in about a week plunged in a mild hotbed; three parts sandy peat, and one sandy, fibry loam. Summer temp., 55° to 75°; winter, 45° to 50°.

E. buxifolius (box-leaved). 2. Pink. May. 1824.

— *cuspidatus* (spine-pointed). 3. Red. May. 1824.

— *ericifolius* (heath-leaved). 3. Red. June. 1824.

— *glaucescens* (milky-green). Lilac. April. 1824.

— *gracilis* (graceful). 1. Lilac. June. 1831.

— *intermedium* (intermediate). Rose. April.

— *lanceolatus* (spear-head-leaved). 3. Red. June. 1823.

- E. latifolium* (broad-leaved). 3. White. 1845.
linearifolius (narrow-leaved). 3. Red. June. 1823.
myoporoides (myoporum-like). 1½. White. September. 1824.
nerifolium (oleander-leaved). 4. Pale pink. April. 1847.
nodiflorum (knot-flowered). Blush. 1841.
oblongifolium (oblong-leaved). White. April. 1825.
scabrum (rough-leaved). 1½. Pink. April. 1840.

ERI'OTHRIX. (From *erion*, wool, and *thrix*, hair; referring to the appendages on the seeds. Nat. ord., *Compositæ* [*Asteraceæ*]. Linn., 19-Syngenesia 2-Superflua. Allied to *Neuroleña*.) See BA'CHARIS LYCOPODIOL'DES.

ERI'SMA. (From *erisma*, strife; referring to the difficulty of assigning their position in the natural arrangement. Nat. ord., *Vochyads* [*Vochyaceæ*]. Linn., 1-Monandria 1-Monogynia.)

Stove evergreen tree. Cuttings of young shoots getting firm, in April, in sand, under a glass, and in bottom-heat; sandy loam and peat. Summer temp., 55° to 80°; winter, 45° to 55°.

- E. floribunda* (many-flowered). 40. Blue. October. Guiana. 1825.

ERITHA'LIS. (From *erithallo*, to grow green; referring to the glossy, deep green of the leaves. Nat. ord., *Cinchonads* [*Cinchonaceæ*]. Linn., 5-Pentandria 1-Monogynia. Allied to *Guettarda*.)

Stove evergreen trees. Cuttings of young stubby side-shoots in spring or summer, in sand, under a bell-glass, and in bottom-heat; sandy, fibry loam, and a little peat. Summer temp., 60° to 80°; winter, 50° to 55°.

- E. fructuosa* (shrubby). 13. White. July. Jamaica. 1793.
Timon (Timon). 12. E. Ind. 1823.

ERNO'DEA. (From *ernodes*, branched. Nat. ord., *Cinchonads* [*Cinchonaceæ*]. Linn., 5-Pentandria 1-Monogynia. Allied to *Spermacoce*.)

Half-hardy evergreen trailer. Division; dry, gravelly soil; protection of a cold-frame in winter.

- E. montana* (mountain). ½. Red. June. Sicily. 1820.

ERO'DIUM. Heron's-bill. (From *erodios*, a heron; referring to the resemblance of the style and ovaries to the beak and head of the heron. Nat. ord., *Cranesbills* [*Geraniaceæ*]. Linn., 16-Monadelphica 2-Pentandria. Allied to *Geranium*.)

The biennials and annuals may be sown in front of a border in April; perennials, divided in March; the half-hardy, by seeds and divisions; sandy loam, and the protection of a cold pit in winter.

HARDY ANNUALS.

- E. Chium* (Chian). Blush. June. Levant. 1724.

- E. ciconium* (stork's). Lilac. July. South Europe. 1711.
gruimum (crane's). Blush. July. Crete. 1596.
muricatum (prickly). ½. Red. July. 1827.
Murcinum (Murcian). 1. Red. July. 1827.
pimpinellifolium (burnet-leaved). ½. Purple. July. South Europe. 1800.

HARDY BIENNIALS.

- E. bipinnatum* (doubly-leafleted). Pink. June. Numidia. 1804.
geifolium (geum-leaved). 1. Lilac. 1835.
pulverulentum (powdered). 1. Lilac. Spain.
Romanum (Roman). ½. Purple. June. Rome. 1724.

HARDY HERBACEOUS.

- E. alpinum* (alpine). ½. Red. June. Italy. 1814.
anthemidifolium (chamomile-leaved). ½. Purple. June. Iberia. 1820.
caucalisolium (caucalis-leaved). 1. Purple. June. France. 1816.
glaucophyllum (grey-leaved). Lilac. July. Egypt. 1732.
Gussonii (Gusson's). 1. Pale purple. June. Naples. 1821.
hirtum (hairy). ½. Purple. June. Egypt. 1818.
litoreum (sea-shore). Lilac. June. Narbonne. 1818.
malapoïdes (malope-like). ½. Purple. June. N. Africa. 1800.
Corsicum (Corsican). ½. Purple. June. Corsica. 1817.
petraeum (rock). ½. Purple. July. South Europe. 1640.
serotinum (late). ½. Blue. August. Siberia. 1821.
Stephanidnum (Stephan's). ½. Blue. June. 1820.
stylatum (long-styled). ½. Purple. June. 1826.

HALE-HARDY HERBACEOUS.

- E. crassifolium* (thick-leaved). ½. Scarlet. June. Cyprus. 1788.
glandulosum (glanded). ½. Purple. June. Spain. 1798.
Hymenoides (Hymen-like). ¾. Pink. July. Barbary. 1789.
incarnatum (flesh-coloured). ½. Flesh. June. Cape of Good Hope. 1787. Evergreen.
laciniatum (fringed). ½. Red. June. Crete. 1794.
melastignum (black-stigmaed). 1. Purple. June. 1823.
Reichardtii (Reichard's). ½. White. July. Minorca. 1783.

ERO'PHILA. (From *er*, the spring, and *phileo*, to love; referring to the time of flowering. Nat. ord., *Crucifers* [*Brassicaceæ*]. Linn., 15-Tetradynamia. Allied to *Draba*.)

Hardy annuals, with white flowers. Seeds; common soil.

- E. Americana* (American). ½. March. N. Amer. 1816.
pratensis (early). ½. March. Caucasus. 1820.
vulgaris (common). ½. March. Britain.

EREP'TION. New Holland, or Spurless Violet. See VI'OLA.

ERYNGIUM. Eryngo. (From *Eryngeon*, a name adopted by Pliny from Diosco-

rides. Nat. ord., *Umbellifers* [*Apiacæ*]. Linn., 5-*Pentandria* 2-*Digynia*. Allied to *Sanícula*.)

The roots of *E. maritimum* and *campestre* are sweet, aromatic, and tonic; they are candied, and sold by the name of *Eringo*-roots. Annual, biennial, and perennial hardy kinds, by seeds and divisions in common soil; if sandy loam, they will thrive best. Half-hardy species require the protection of a pit or greenhouse in winter, and sandy loam.

HARDY ANNUALS, &c.

E. tenue (slender). 1. Blue. July. Spain. 1824.
— *tricuspidatum* (three-pointed). 2. Green. September. Spain. 1699. Biennial.

HALF-HARDY HERBACEOUS.

E. Carlinae (*Carlina*-like). Blush. August. North Spain. 1827.
— *Cervantesii* (*Cervantes's*). 1. Green. August. Mexico. 1820.
— *comosum* (tufted). Blue. July. North Spain. 1818.
— *ebracteatum* (bractless). 2. July. Buenos Ayres. 1817.
— *gramineum* (grass-leaved). Blush. August. New Spain. 1825.
— *monoccephalum* (one-headed). Purple. August. Mexico. 1824.
— *ovinum* (sheep). 1½. White. July. N. Holland. 1824.
— *serratum* (saw-edged). 1. Blue. July. New Spain. 1800.
— *ternatum* (three-leafted). Purple. August. Crete.

STOVE HERBACEOUS.

E. bromeliifolium (pine-apple-leaved). 3. White. July. New Spain.
— *faetidum* (stinking). 1. Green. September. W. Ind. 1714.
— *gracile* (slender). 1. Blue. July. New Spain. 1824.
— *longifolium* (long-leaved). 3. White. July. Mexico. 1820.

HARDY HERBACEOUS.

E. alpinum (alpine). 2. Blue. July. Switzerland. 1507.
— *amethystinum* (amethystine). 3. Light blue. July. Styria. 1648.
— *Andersonii* (*Anderson's*). 2. Blue. July. 1800.
— *aquaticum* (aquatic). 4. White. August. N. Amer. 1699.
— *aquifolium* (holly-leaved). 1. Blue. August. Spain. 1816.
— *asperifolium* (rough-leaved). 2. White. July. 1820.
— *azuzeum* (light blue). 2. Blue. July. South Europe. 1790.
— *Baldwinii* (*Baldwin's*). Blush. August. Carolina. 1824.
— *Billardiærii* (*Billardiære's*). Blush. July. South France. 1731.
— *Bourgati* (*Bourgati's*). 2. Pale blue. July. South France. 1731.
— *cæruleum* (sky-blue). 2. Blue. July. Caspian. 1816.
— *campestre* (field). 2. Blue. July. Britain.
— *corniculatum* (small-horned). 1. Green. July. Portugal. 1803.
— *crinitum* (fringe-leaved). Blue. August. Spain. 1826.
— *dichotomum* (spreading). 2. Blue. July. South Europe. 1820.

E. dilatatum (dilated). 1½. Blue. July. Portugal. 1821.
— *galioides* (galium-like). ½. Green. July. Portugal. 1810.
— *giganteum* (giant). 4. Blue. July. Caucasus. 1820.
— *glomeratum* (crowded). 1. Blue. July. South Europe. 1826.
— *macrophyllum* (large-leaved). 1831.
— *maritimum* (sea-holly). 1½. Blue. July. Britain.
— *platnum* (flat-leaved). 3. Light blue. July. Europe. 1596.
— *pustillum* (small). ¾. Green. July. Spain. 1640.
— *rigidum* (stiff). ¾. Blue. July. France. 1816.
— *spina-alba* (white-spined). White. August. South Europe. 1816.
— *triquestrum* (triangular). 1. Blue. July. South Europe. 1824.
— *virgatum* (twiggy). 1. Light blue. June. N. Amer. 1810.
— *Virginianum* (*Virginian*). 2. Blue. August. N. Amer.

ERY'SIMUM. Hedge Mustard. (From *eryo*, to draw; supposed to produce blisters. Nat. ord., *Crucifers* [*Brassicacæ*]. Linn., 15-*Tetradynamia*. Allied to *Sisymbrium*.)

Annuals and biennials, by seed in the open border, in September or March; perennials, seeds and divisions.

HARDY PERENNIALS.

E. suffruticosum (sub-shrubby). 2. Yellow. June. Europe. 1820. Evergreen.
— *versicolor* (party-coloured). 1. Variegated. May. Caucasus. 1825.

HARDY ANNUALS.

E. perfoliatum (leaf-pierced). 1. White. May. Austria. 1818.
— *quadricorne* (four-horned). 1. Yellow. June. Siberia. 1821.

HARDY BIENNIALS.

E. altissimum (tallest). 3. Yellow. June. Germany. 1818.
— *Andrzejoskianum* (*Andrzejoski's*). 1½. Yellow. June. Tauria. 1818.
— *azuzeum* (golden). 1. Yellow. June. Caucasus. 1820.
— *bicolor* (two-coloured). 1. Yellow. May. Switzerland. 1818.
— *cane-scens* (hoary). 1. Yellow. June. South Europe. 1816.
— *collinum* (hill). 1. Yellow. May. Caucasus. 1823.
— *crassipes* (thick-leaf-stalked). 1. Yellow. June. 1835.
— *decumbens* (decumbent). ½. Yellow. June. Switzerland. 1819.
— *firmum* (firm). 1. Yellow. July. Switzerland. 1819.
— *hieracifolium* (hawkweed-leaved). 1. Yellow. June. North Europe. 1816.
— *Ibericum* (*Iberian*). 1. Yellow. May. America. 1803.
— *intermedium* (intermediate). 2. Yellow. June. Switzerland. 1819.
— *leptophyllum* (fine-leaved). 1. Yellow. June. Iberia. 1821.
— *longifolium* (long-leaved). 1. Yellow. June. South Europe. 1823.

E. longistillicum (long-podded). 1½. Yellow. June. Switzerland. 1819.

— *patulum* (spreading). 1. Yellow. June. South Europe. 1820.

— *Perofskianum* (Perofski's). 1½. Orange. July. 1838.

— *pumilum* (dwarf). ½. Yellow. May. Switzerland. 1819.

— *Redowskii* (Redowski's). 1. White. June. Siberia. 1821.

— *Rhaeticum* (Rhaetian). 1. Yellow. June. Switzerland. 1819.

— *strigosum* (short-bristled). 1. Yellow. June. Siberia. 1806.

— *strictum* (erect). 2. Yellow. June. Austria. 1819.

ERYTHRE'A. (From *erythros*, red; the colour of the flowers of some species. Nat. ord., *Gentianaceae* [Gentianaceae]. Linn., 5-Pentandria 1-Monogynia.)

The biennial should be sown in autumn; the perennials, by seeds and division; sandy loam, with a little peat. The species worth cultivating require a pit or frame in winter.

E. aggregata (clustered). ½. Red. July. South Europe. 1824. Biennial.

— *conferta* (crowded). ½. Pink. June. Spain. 1824. Herbaceous perennial.

— *maritima* (sea). ½. Yellow. July. Switzerland. 1777. Herbaceous trailer.

— *Massoni* (Masson's). Yellow. July. Azores. 1777. Herbaceous.

ERYTHRI'NA. Coral-tree. (From *erythros*, red; the colour of the flowers. Nat. ord., *Leguminous Plants* [Fabaceae]. Linn., 17-Diadelphia 4-Decandria.)

According to Dr. Royle, gum lac is the produce of a species of Coral-tree, *E. monosperma*, not here in cultivation. Stove plants; all scarlet-flowered. By cuttings of the young shoots breaking from the old collar of the plant in spring, and when two or three inches long; also by cutting up the old flowering-stems when ripe, and in both cases covering with a bell-glass, after placing them in sand, and in a strong bottom-heat; peat, loam, and dried cow-dung, in equal proportions, with a portion of sand. Summer temp., 55° to 80°; winter, 45° to 55°. *E. cristagalli* and *aurifolia* do out of doors in sheltered places, cut down, and the roots slightly protected as for fuchsias, in winter.

E. corallodendrum (coral-tree). 20. May. W. Ind. 1690.

— *cristagalli* (cock's-comb). 40. June. Brazil. 1771.

— *fulgens* (brilliant). 10. E. Ind. 1810.

— *herbacea* (herbaceous). 3. July. Carolina. 1824. Herbaceous.

— *aurifolia* (laurel-leaved). 4. August. S. Amer. 1800. Herbaceous.

— *macrophylla* (large-leaved). 20. Teneriffe. 1822.

— *ovalifolia* (oval-leaved). 10. E. Ind. 1816.

— *picta* (painted). 6. E. Ind. 1696.

— *Portoricensis* (Porto Rico). 10. Porto Rico. 1800.

— *secundiflora* (side-flowering). 20. Brazil. 1820.

— *speciosa* (showy). 10. September. W. Ind. 1805.

ERYTHROCHITON. (From *erythros*, red, and *chiton*, a tunic; referring to the flower-envelope, or calyx. Nat. ord., *Eue-*

worts [Rutaceae]. Linn., 5-Pentandria 1-Monogynia. Allied to *Galipea*.)

Stove evergreen tree. Seeds and cuttings, in sand and heat; peat and loam. Summer temp., 60° to 80°; winter, 50° to 55°.

E. Braziliensis (Brazilian). 10. White. July. Brazil. 1842.

ERYTHROLÆ'NA. Mexican Thistle. (From *erythros*, red, and *læna*, a cloak; referring to the scarlet flowers. Nat. ord., *Compositae* [Asteraceae]. Linn., 19-Syngenesia 1-Æqualis. Allied to *Carduus*.)

The prettiest of all the Thistles; seeds in April; should be treated as a biennial, or not allowed to seed; the young plants to be kept over the winter in frames, and planted out in May in the American beds, where they will rise with numerous branches, crowned with scarlet, thistle-looking flowers.

E. conspicua (conspicuous). 8. Scarlet, orange. September. Mexico. 1825.

ERYTHRONIUM. Dog's-Tooth Violet. (From *erythros*, red; referring to the colour of the leaves and flowers of the species first discovered. Nat. ord., *Liliaceae* [Liliaceae]. Linn., 6-Hexandria 1-Monogynia.)

Hardy bulbs; offsets; common garden-soil; *E. lanceolatum* requires a little heat.

E. albidum (whitish). ½. White. April. Louisiana. 1824.

— *dens-canis* (dog's-tooth. Common). ½. Lilac. March. Europe. 1596.

— *albidum* (whitish). ½. White. March. Italy. 1596.

— *rubrum* (red-flowered). ½. Red, lilac. March. Europe. 1596.

— *giganteum* (gigantic). Yellow. April. N. Amer.

— *grandiflorum* (large-flowered). ½. Yellow. May. N. Amer. 1826.

— *lanceolatum* (spear-head-leaved). ½. Yellow. April. N. Amer. 1665.

— *longifolium* (long-leaved). Rose. March. Switzerland.

ERYTHROPO'GON. (From *erythros*, red, and *pogon*, a beard; referring to the colour of the chaffy scales of the flowers. Nat. ord., *Compositae* [Asteraceae]. Linn., 19-Syngenesia 1-Æqualis.)

Greenhouse evergreens, from the Cape of Good Hope. Cuttings of young shoots in April, in sand, under a bell-glass; sandy loam, and a little peat. Winter temp., 35° to 45°.

E. imbricatus (imbricated). White. May. 1816.

— *umbellatus* (umbelled). Rose. May. 1816.

ERYTHROPHLE'UM. Red Water-tree. (From *erythros*, red, and *phleas*, an ancient name for a prickly plant; referring to the flow of red juice when the tree is wounded. Nat. ord., *Leguminous Plants* [Fabaceae]. Linn., 10-Decandria 1-Monogynia. Allied to *Mimosa*.)

Stove evergreen tree. Cuttings of ripened shoots

in sand, under a bell-glass, in heat; rich, fibry loam, with a little peat. Summer temp., 60° to 80°; winter, 48° to 55°.

E. Guineense (Guinea). 100. Pale yellow. Sierra Leone. 1793.

ERYTHROXYLON. (From *erythros*, red, and *xylon*, wood. Nat. ord., *Erythroxyls* [*Erythroxylaceæ*]. Linn., 10-*Decandria* 3-*Trigynia*.)

The wood of some species is deep red. *E. Havanense* is the best garden-plant among them. Stove evergreen trees, with yellowish-green flowers. Cuttings of half-ripe shoots in sand, under a glass, and in heat; peat and loam. Summer temp., 60° to 75°; winter, 48° to 55°.

E. Havanense (Havannah). 10. Havannah. 1822. — *hypericifolium* (hypericum-leaved). 40. Mauritius. 1818.

— *laurifolium* (laurel-leaved). 50. Mauritius. 1823.

ESCALONIA. (Named after *Escallon*, a Spanish traveller. Nat. ord., *Escaloniads* [*Escalloniaceæ*]. Linn., 5-*Pentandria* 1-*Monogynia*.)

Evergreen greenhouse shrubs. Cuttings of young shoots rather ripe, in sandy soil, under a hand-light, in summer; or younger smaller shoots under a bell-glass, in the greenhouse; peat and loam, with a little road-drift, and well drained; most of them will do against a wall, with the protection of a spruce-branch in frosty weather, in winter, especially if the wall has a broad coping.

E. Caracasana (Caracas). White. Caracas. 1827.

— *discolor* (two-coloured). 6. White. S. Amer. 1820.

— *floribunda* (many-flowered). White. July. New Grenada. 1827.

— *glandulosa* (glanded). Red. September. Chili. 1827.

— *grandiflora* (large-flowered). 5. July. 1846.

— *ilicifolia* (varnished). 5. White. August. Chili. 1830.

— *incaana* (hoary). July. 1847.

— *Montevidensis* (Monte Video). 6. White. July. Brazil. 1827.

— *Organensis* (Organ Mountains). 3. Rose. Organ Mountains. 1844.

— *ptero-cladon* (winged-branched). 4. White, red. July. Patagonia. 1834. Hardy.

— *pulverulenta* (dusted). 8. Chili. 1831.

— *rubra* (red-flowered). 3. Red. September. Chili. 1827.

— *albiflora* (white-flowered). 6. White. July.

— *pubescens* (downy). 6. Red. July.

— *viscosa* (clammy). 5. White. Mendoza. 1829.

ESCHALLOT, or SHALLOT. *Allium Ascalonicum*.

Varieties.—The *Common*, which puts up long, slender, dark-green leaves; and the *Long-keeping*, with larger bulbs and dwarfer habit, and keeps good for nearly or quite two years. Both have a stronger taste than the onion, yet not leaving its disagreeable smell on the palate.

Propagation.—Each offset will increase

in a similar manner as its parent, and may be planted out either in the months of October and November, or early in the spring, from February to the beginning of April. Autumn is the best season for planting, if the soil lies dry. If planted in beds, let them be three feet and a half wide, and three or four inches higher than the alleys, and the surface of the bed a little arched. Set out the rows nine inches apart from row to row, and plant the offsets singly with the hand upon the surface of the bed, six inches apart in the row, just pressing each bulb down firm in the soil; see occasionally that they are not cast out of their places by worms or other vermin; or each bulb may be covered with either a little old tan or coal-ashes, in little ridges along the rows, an inch and a half or two inches deep. When the bulbs are well established and growing, this covering should be removed with the hand; no other culture is required, except earth-stirring. Take them up for storing, when full grown, towards the end of June or July, as soon as the leaves begin to decay. Spread them out to dry, on boards, in some airy situation.

ESCHSCHOLTZIA. (Named after *Dr. Eschscholtz*, a botanist. Nat. ord., *Poppy-worts* [*Papaveraceæ*]. Linn., 13-*Polyandria* 4-*Tetragynia*.)

Hardy bulbs, with yellow flowers; seeds sown in the open border, in March; when once introduced they will generally sow themselves; if sown in autumn, and an evergreen branch bent over them in severe weather, they will bloom early.

E. Californica (Californian). 1. September. California. 1826.

— *compacta* (compact). 1. August. California. 1833.

— *crocea* (saffron-coloured). 1. August. California. 1833.

— *fumariifolia* (fumaria-leaved). September. Mexico. 1827.

— *tenuifolia* (tender-leaved). $\frac{1}{2}$. Yellow. Germany.

ESPALEERS. A term used to express modes of training fruit-trees on rails of iron or wood, as bordering to the walks of kitchen-gardens, whereby the margins are rendered more ornamental, and the walls are relieved of many trees too tender to withstand the ordinary rigours of our climate. The forms of these trellises vary much; some are placed perpendicularly, others horizontal, and others, again, in a curved or saddle-like form, with various other shapes which the fancy of the owner, or the peculiar situation, may dictate. These rails are

generally placed within a few feet of the garden-walk, having, also, another walk or alley at the back, in order to facilitate operations. Espaliers being nearer to the ground than ordinary standards, we need hardly say that in such a position they are warmer. The mode of training tends to check exuberance of growth, which is of some service in a dwarfing, and, by consequence, an early fruiting system. The trees are completely within reach for stopping, and various other manipulations, which, on standards, require ladders and other cumbrous machines. Again, a much greater collection of fruits may be cultivated, in any garden, by an espalier system, than by the ordinary course of culture. The espalier system can be rendered conducive to the greatest amount of produce, as well as to the most ornamental appearance.

Form of Trellis.—This is very material. There are fruits which must have sunshine to perfect them, yet will succeed with a moderate share. There are others which will succeed in what is commonly termed a northern aspect; such are adapted for the northern side of trellises, which run east and west. Again, others must have a full exposure to the sun. Kitchen-gardens are mostly rectangular, and if most or all of the margins be appropriated to trellises, there will be a great difference between those which run north and south and east and west. To avoid over-shadowing, we think that what have been termed *Table Trellises*, that is, those which present a flat surface, parallel to the horizon, at about a foot or half a yard from the ground are by far the best for the majority of fruits.

Perpendicular Rails are, however, very well adapted for many of our fruits, and if iron is not used, a very nice, but somewhat perishable structure may be formed by means of wood. Permanent stakes of oak, larch, &c., may be driven at from two to three feet apart perpendicularly, and temporary stakes driven as wanted between them, of more perishable material. The temporary, or intervening stakes are to be moveable at pleasure, and when the trees acquire a strong fabric, may be entirely dispensed with.

The *Strained-wire Rail* is, however, much superior, and will, doubtless, prove most economical in the end. Such, well-constructed, with stone bases to the iron uprights, would endure a century, and

are, at least, particularly to be recommended for trees of slender wood. As for perpendicular iron treillage, an ordinary field hurdle will give a pretty good idea; the distance between the rails being, of course, ruled by the mode of growth of the tree.

With regard to *Arched or Saddle Trellises*, we would speak with some caution. Running north and south, and occupied with trees properly adapted, they will doubtless succeed, and they are assuredly ornamental.

Gooseberries and currants we have found conveniently trainable to a cheap trellis of this form—



It is not the least advantage attendant upon this mode of training, that the fruit is easily covered and protected.

ETIOLATION. The same as *Blanching*.

EUCALYPTUS. Gum-tree. (From *eu*, good, and *kalypto*, covering; referring to the flower-envelope, or calyx, which covers the flower and falls off like a cap. Nat. ord., *Myrtleblooms* [Myrtaceæ]. Linn., 12-*Icosandria* 1-*Monogynia*. Allied to *Metrosideros*.)

Greenhouse evergreen trees, from New Holland, and all with white blossoms. Cuttings of young, firm side-shoots in the beginning of summer, in sandy soil, under a bell-glass; peat and loam; a cool greenhouse. Winter temp., 35° to 45°. Most of them in warm places will do well against walls, with a little protection, if dryness is secured.

E. ala'ta (winged). 1816.

— *amygdali'na* (almond-leaved). 1830.

— *coccif'era* (coccus-bearing). 20. Purple. December. Van Diemen's Land.

— *corymbo'sa* (corymb-flowered). 1788.

— *cotinifo'lia* (cotinus-leaved). 1818.

— *Eugenioi'des* (Eugenia-like). 1830.

— *glob'u'lus* (globuled). 150. 1810.

— *hæma'stoma* (bloody-mouthed). 30. 1803.

— *heterophy'lia* (various-leaved). 30. 1820.

— *hirsu'ta* (hairy). 20.

— *hypericifo'lia* (hypericum-leaved). 1823.

— *incrassa'ta* (thickened). 6. 1818.

— *longifo'lia* (long-leaved). June.

— *margin'a'ta* (thick-edged). May. 1794.

— *me'dia* (intermediate). 1823.

— *macrocar'pa* (large-fruited). 6. June. 1842.

— *microphy'lia* (small-leaved). 20. 1823.

— *mucron'a'ta* (sharp-pointed). 1823.

— *multifo'ra* (many-flowered). 1820.

— *myrtifo'lia* (myrtle-leaved). 6. 1823.

— *obli'qua* (twisted-leaved). 100. July. 1774.

— *orbicula'ris* (globe-shaped). 1816.

— *ova'ta* (egg-form-leaved). 6. 1820.

— *perfolia'ta* (leaf-pierced). 1820.

- E. persicifolia* (peach-leaved). July. Cape of Good Hope. 1817.
 — *phillyreoides* (phillyrea-like). 1820.
 — *pituldris* (peltated). 1804.
 — *putchella* (pretty). 1820.
 — *pulverulenta* (powdery). 30. June. 1816.
 — *pulchgera* (powdered). 1824.
 — *purpurea* (purplish-nerced). 1823.
 — *suligna* (willow-like). 1804.
 — *scahra* (rough). 1810.
 — *stenophylla* (narrow-leaved). 1823.
 — *stricta* (erect).
 — *verrucosa* (warted). 1820.
 — *vinivitis* (rod-like). 1810.
 — *virgata* (twiggy).

EUCHÆTIS. (From *eu*, well, and *chaite*, a head of hair; the bottom of the petals furnished with hairs inside. Nat. ord., *Rueworts* [Rutacæ]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Diosma*.)

Greenhouse evergreen shrub, from the Cape of Good Hope. For culture, see *Diosma*.

- E. glomerata* (close-flowered). 1. White. May. 1818.

EUCHARIIDIUM. (From *eucharis*, agreeable; referring to the general appearance of this exquisite little hardy annual. Nat. ord., *Onagrad* [Onagracæ]. Linn., 8-*Ocandria* 1-*Monogynia*. Allied to *Clarkia*.)

Sow in the open ground, in September, March, and middle of May, for flowering from May to September; sow, also, in a slight hotbed in March, and transplant into the borders.

- E. concinnum* (neat). 1. Purple. June. N. Amer. 1836.
 — *grandiflorum* (large-flowered). Rosy-red. June. 1824.

EUCHILUS. (From *eu*, fine, and *cheilos*, a lip; referring to the upper division of the flower-envelope, or calyx. Nat. ord., *Leguminous Plants* [Fabacæ]. Linn., 10-*Decandria* 1-*Monogynia*. Allied to *Gastrolobium*.)

Greenhouse evergreen. Cuttings of young, firmish side-shoots, or points of shoots, in sand, under a bell-glass, without any bottom-heat. Winter temp., 40° to 45°; peat and loam.

- E. obcordatus* (reversed-heart-leaved). 2. Yellow. April. N. Holland. 1803.

EUCHROMA. (From *eu*, good, and *chroma*, colour; referring to the colour of the bractes. Nat. ord., *Figworts* [Scrophulariacæ]. Linn., 14-*Didynamia* 2-*Angiospermia*.)

This genus should be reunited to *CASTILLEJA*, which see for culture.

- E. coccinea* (scarlet-bracted). $\frac{1}{2}$. Yellow. July. N. Amer. 1787. Hardy annual.
 — *grandiflora* (large-flowered). 1 $\frac{1}{2}$. Purple, yellow. July. Louisiana. 1811. Hardy herbaceous.

EUCLEA. (From *eukleia*, glory; referring to the beauty of the ebony-like wood, and fine green leaves. Nat. ord., *Ebenuds*

[*Ebenacæ*]. Linn., 22-*Diæcia* 10-*Decandria*. Allied to *Diospyros*.)

Greenhouse evergreens, with white flowers, from the Cape of Good Hope. Cuttings of half-ripe shoots in sand, under a bell-glass, in April; peat and loam. Summer temp., 55° to 75°; winter, 40° to 45°.

- E. racemosa* (racemed-round-leaved). 5. November. 1773.
 — *undulata* (waved-leaved). 5. 1794.

EU'COMIS. (From *eukomes*, beautiful-haired; referring to the tufted crown of the flower-spike. Nat. ord., *Lilyworts* [Liliacæ]. Linn., 6-*Hexandria* 1-*Monogynia*. Allied to *Daubénia*.)

Strong Cape of Good Hope bulbs, which, if planted six inches deep in a rich, light border in front of a greenhouse, remain uninjured, and flower every year. Propagated by offsets.

- E. bifolia* (two-leaved). $\frac{1}{2}$. Light green. April. 1792.
 — *na'na* (dwarf). $\frac{1}{2}$. Brown. May. 1774.
 — *punctata* (dotted). 2. Green, brown. June. 1783.
 — *purpureocaulis* (purple-stalked). 2. Green, brown. April. 1794.
 — *regia* (royal). 2. Green. March. 1702.
 — *striata* (streaked). 2. Green. 1790.
 — *undulata* (waved-leaved). 2. Green. April. 1760.

EUCRO'SIA. (From *eu*, beautiful, and *krossos*, a fringe; referring to the cup above the insertion of the stamens. Nat. ord., *Amaryllids* [Amaryllidacæ]. Linn., 6-*Hexandria* 1-*Monogynia*. Allied to *Stenomesson* and *Elisena*.)

This is the best ill-used bulb in British gardens. Sweet, Don, Loudon, and Paxton make it a native of Cape Horn, instead of the western declivities of the Peruvian Andes—a mistake which caused the destruction of many bulbs. Hooker and Lindley gave badly-coloured figures of it, and the latter placed it in alliance with *Phycella*, with which it has no affinity. *Bi'color* refers to a dark-green stripe in the middle of the petals, outside; the flower is of a bright vermilion. It delights in strong loam; rests in winter, and prefers the stove. Offsets; light, rich loam. Winter temp., 35° to 45°.

- E. bi'color* (two-coloured). 1. Scarlet, green. April. Peru. 1816.

EUDESMIA. (From *eu*, beautiful, and *desma*, a bundle; referring to the connected parcels of stamens. Nat. ord., *Myrtleblooms* [Myrtacæ]. Linn., 18-*Polyadelphia* 2-*Polyandria*. Allied to *Melaleuca*.)

Greenhouse evergreen tree. Cuttings of young shoots getting firm at the base, in sand, under a bell-glass, in April or May; peat and loam. Winter temp., 40° to 45°.

- E. tetragona* (four-angled). 16. Red. July. N. Holland. 1824.

EUGENIA. (Named after Prince Eugene of Saxony. Nat. ord., *Myrtleblooms*

[Myrtaceæ]. Linn., 12-*Icosandria* 1-*Monogynia*. Allied to *Jambosa* and *Caryophyllus*.)

Stove evergreens, all white-blossomed. For culture see *CARYOPHYLLUS*.

- E. balsamica* (balsamic). 15. Jamaica. 1816.
- *burifolia* (box-leaved). 4. May. W. Ind. 1818.
- *elliptica* (oval-fruited). 8. July. N. S. Wales. 1790.
- *floribunda* (bundle-flowered). 5. W. Ind.
- *fragrans* (sweet-scented). 10. April. Jamaica. 1790.
- *glandulifera* (glanded). 10. E. Ind. 1825.
- *Javanica* (Javanese). 10. Java. 1823.
- *latifolia* (broad-leaved). 10. Guiana. 1793.
- *macrocarpa* (large-fruited). 20. E. Ind. 1822.
- *obovata* (reversed-egg-leaved). Isle of France. 1823.
- *obtusifolia* (blunt-leaved). 10. E. Ind. 1821.
- *pulchella* (pretty). 10. E. Ind. 1824.
- *rugosa* (wrinkly). E. Ind. 1824.
- *Sinemariensis* (Sinemaria). 4. June. Guiana. 1823.
- *Ugni* (Ugni—native name). 3. Pink. July. South Chili. 1851.

EULOPIA. (From *eulophos*, handsome crested; referring to the handsome lip, or labellum, furrowed into elevated ridges. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-*Gynandria* 1-*Monandria*. Allied to *Galeandra*.)

A family of those forms of orchids, which, like our British species, derive their nutriment from the ground, and hence are called ground or terrestrial orchids. An Indian species of *Eulophia* furnishes, from its tuberous roots, the nutritive substance called *salep*. Division of the plant when in a state of rest, just as fresh growth commences; peat and loam, both fibry, and well drained; well watered when growing, kept nearly dry when resting. Summer temp., 60° to 80°; winter, 45° to 55°. Those from Sierra Leone and East Indies require a few degrees more.

- E. barbatula* (bearded). 1. July. Cape of Good Hope. 1825.
- *Guineensis* (Guinea). 1. Purple, brown. September. Sierra Leone. 1822.
- *longicornis* (long-horned). 1. July. Cape of Good Hope. 1825.
- *macrostachya* (large-spiked). 2. Yellow, green. October. Ceylon.
- *squalida* (squalid). Dingy. July. Manilla. 1838.

EUMERUS ÆNEUS. Brassy Onion-fly. Mr. Curtis says the maggots are brownish, and are very rough from a multitude of rigid bristles, especially towards the tail. The fly itself is of a reddish-ochre colour, freckled with dark brown, and there are two spiny processes like short horns upon the thorax, in the female at least. It is densely clothed with short hairs, thickly and distinctly punctured, and of an olive-green colour, with a brassy tinge; the antennæ (feelers) are entirely black, the seta naked; the face is very

hairy, simply convex, and silvery white; eyes dark brown, and slightly hairy; rostrum very short; thorax with two whitish lines down the back. The maggots of this fly do not seem to be confined to the onion, for Mr. Curtis bred one in the middle of May from cabbage-roots, and specimens have been taken flying about hedges in June and July, in the neighbourhood of London and Bristol. As it often happens, the female has not been observed depositing her eggs; the spot that she selects is therefore yet unknown. Drought does not suit them.

EUNOMIA. (From *eu*, well, and *nomos*, arranged; referring to the disposition of the leaves in pairs and twin seeds. Nat. ord., *Crucifers* [Brassicaceæ]. Linn., 15-*Tetradynamia*. Allied to *Lepidium*.)

Half-hardy evergreen. Seeds under a glass, in spring; cuttings under a glass, in summer; common sandy soil; requires the protection of a pit, in most places, in winter; may be treated as an alpine.

- E. oppositifolia* (opposite-leaved). 1. White. July. Syria. 1827.

EUONYMUS. The Spindle-tree. (From *eu*, good, and *onoma*, a name; literally, of good repute. Nat. ord., *Spindle-trees*, [Celastraceæ]. Linn., 5-*Pentandria* 1-*Monogynia*.)

Interesting trees and shrubs in autumn, their opening capsules looking very beautiful when other things are losing their attractions. Seeds may be sown either in autumn or spring; cuttings of ripe young shoots may be planted in a border in autumn; common soil. The American species require a moist situation. Those from Nepal, though from a high altitude, have not been proved quite hardy, though it is presumed they would in many places; protect them in winter.

HALF-HARDY EVERGREENS.

- E. Chineensis* (Chinese). 4. Pink. May. China. 1820.
- *echinatus* (prickly). 10. White. May. Nepal. 1824. Deciduous.
- *grandiflorus* (large-flowered). 8. White. June. Nepal. 1824.
- *Hamiltonianus* (Hamilton's). 20. White. June. Nepal. 1825.
- *Japonicus* (Japanese). 6. Pink. July. Japan. 1804.
- — *maculatus* (spotted). 6. Pink. July. Japan. 1836.
- — *variegatus* (variegated). 6. Pink. July. Japan. 1836.

HARDY DECIDUOUS.

- E. America-nus* (American). 6. Pink. June. N. Amer. 1833.
- *angustifolius* (narrow-leaved). 6. Yellow, red. June. N. Amer. 1806. Evergreen.
- *atro-purpureus* (dark purple). 6. Purple. June. N. Amer. 1756.
- *Europæus* (European). 15. White. June. Britain.

- E. Europa'us foliis variegatis* (variegated-leaved). 15. White. May. Britain.
 — *fructu albo* (white-fruited). 12. White. May. Britain.
 — *latifolius* (broad-leaved). 15. White. May.
 — *nanus* (dwarf). 4. White. May.
 — *sinbiatus* (fringed). Green. May. Japan.
 — *latifolius* (broad-leaved). 10. Green. June. Austria. 1730.
 — *lucidus* (shining). 7. White. Nepaul. 1820.
 — *obovatus* (reversed-egg-leaved). 3. Pink. June. N. Amer. 1820.
 — *t'ingens* (staining). Green. Japan.
 — *velutinus* (velvety). White. June. Caucasus. 1838.
 — *verrucosus* (warted). 6. Green. May. Austria. 1763.

EUPATO'RIMUM. (Named after *Mithridates Eupator*, King of Pontus, who discovered one of the species to be an antidote against poison. Nat. ord., *Compositæ* [Asteraceæ]. Linn., 19-Syngenesia 1-*Æqualis*.)

Stove shrubs and under-shrubs, by cuttings in sand, under a bell-glass; peat and loam; stove, greenhouse, and hardy herbaceous plants, by division, as fresh growth is commencing; common soil. Usual stove and greenhouse temperatures.

STOVE HERBACEOUS.

- E. Berteroianum* (Bertero's). White. August. Guadeloupe. 1830.
 — *anthinum* (violet). 2. Purple. January. Mexico. 1819.
 — *ivaefolium* (iva-leaved). 3. Pink. September. Jamaica. 1791.
 — *macrophyllum* (large-leaved). 4. White. July. Jamaica. 1823.
 — *paniculatum* (panicle). 6. Pink. August. S. Amer. 1818.
 — *Schiedeanum* (Schiede's). White. June. Mexico. 1833.

STOVE EVERGREENS.

- E. canescens* (hoary). 3. Purple, yellow. Jamaica. 1821.
 — *chamædrifolium* (germander-leaved). 1. Blue. August. S. Amer. 1822.
 — *Dalea* (Dalea-like). 6. Pink. August. Jamaica. 1773.
 — *floribundum* (bundle-flowered). 1½. Blue. July. S. Amer. 1823.
 — *odoratum* (sweet-scented). 3. Pink. August. Jamaica. 1752.
 — *tetragonum* (four-sided). White. Mexico. 1832.
 — *Xalapense* (Xalapa). 3. White. July. Mexico. 1826.

HARDY HERBACEOUS.

- E. ageratoides* (ageratum-like). 4. White. August. N. Amer. 1640.
 — *altissimum* (tallest). 5. Pink. September. N. Amer. 1699.
 — *aromaticum* (aromatic). 4. White. July. N. Amer. 1739.
 — *cannabinum* (hemp-like. Agrimony). 4. Pink. July. Britain.
 — *coronopifolium* (coronopus-leaved). 3. White. August. Carolina. 1824.
 — *feniculaceum* (fennel-leaved). 4. Pale yellow. August. N. Amer. 1807.
 — *Fraseri* (Fraser's). 1½. White. August. Carolina. 1820.

- E. hyssopifolium* (hyssop-leaved). 1. White. August. N. Amer. 1699.
 — *lanceolatum* (spear-head-leaved). 3. White. July. N. Amer. 1819.
 — *maculatum* (spotted-stalked). 3. Purple. July. N. Amer. 1656.
 — *perfoliatum* (pierced-leaved). 2. White. July. N. Amer. 1699.
 — *pubescentes* (downy). 4. White. July. N. Amer. 1819.
 — *purpureum* (purple-stalked). 5. Pink. August. N. Amer. 1610.
 — *rotundifolium* (round-leaved). 1. White. July. N. Amer. 1699.
 — *sessilifolium* (stalkless-leaved). 1. White. September. N. Amer. 1777.
 — *Syriacum* (Syrian). 4. Purple. August. Syria. 1807.
 — *trifoliatum* (three-leaved). 6. Purple. August. N. Amer. 1768.
 — *truncatum* (cut-off). 1½. White. September. N. Amer. 1800.
 — *verticillatum* (whorl-leaved). 5. Purple. August. N. Amer. 1811.

EUPH'TALUM. (From *eu*, handsome, and *petalum*, a petal; referring to the large handsome flowers. Nat. ord., *Begoniads* [Begoniaceæ]. Linn., 21-Monocia 7-*Heptandria*.)

Stove herbaceous perennial; division of the plant; cuttings of shoots when young, in sandy soil, under a bell-glass; sandy peat and fibry loam. Summer temp., 55° to 80°; winter, 45° to 55°.

- E. punctatum* (dotted). Rose, scarlet. May. Mexico. 1839.

EUPHORBIA. Spurge, or Milkwort. (Named after *Euphorbus*, physician to the king of Mauritania. Nat. ord., *Spurge-worts* [Euphorbiaceæ]. Linn., 11-Dodecandria 3-*Trigynia*.)

The unripe seed-pods of *E. la'thyrus* are the British capers. A large family, widely differing in their habits. Hardy annuals may be sown in the open border, in April; but, with the exception of *plumosa* and a few more, the rest are not worth ground-room. Even the tropical annuals are little better; they require to be raised in a hotbed and transplanted. Herbaceous perennials are chiefly hardy; divisions of the plant, and seeds; sandy soil; shrubs and under-shrubs chiefly require a dry stove and warm greenhouse, and are propagated by seeds and by cuttings, which should be dried at the base before placing in any rough, loose material. The species which are firm and hard require a rich, light loam, with a little peat; those that are very succulent should have a large portion of lime-rubbish and broken bricks. Winter temp., not much below 45°. There are two sub-evergreen shrubs, natives of England, *amygdaloides* and *characias*, both of which, and especially the latter, do well for rock-work. *Spinosa*, from the south of Europe, did well in the Botanic Garden at Cambridge.

HARDY ANNUALS.

- E. globosa* (globular). 1. July. 1818.
 — *Neapolitana* (Neapolitan). 1½. July. Naples. 1816.
 — *plumosa* (feathery). July. 1816.
 — *rubra* (red). ½. June. France. 1818.

- E. serpyllifolia* (thyme-leaved). $\frac{1}{2}$. July. S. Amer. 1817.
Taurica (Taurian). 1. June. Tauria. 1820.
variegata (variegated). September. Louisiana. 1811.

STOVE ANNUALS.

- E. hirta* (hairy). $\frac{1}{2}$. July. E. Ind. 1818.
ophthalmica (ophthalmic). $\frac{1}{2}$. July. Rio Janeiro. 1824.
scordifo'lia (scordium-leaved). $\frac{1}{2}$. July. Africa. 1823.

GREENHOUSE EVERGREENS.

- E. aphy'lia* (leafless). $1\frac{1}{2}$. Teneriffe. 1815.
a'pios (pear-rooted). $\frac{1}{2}$. July. Candia. 1596.
el'tro-purpu'rea (dark purple). 3. July. Teneriffe. 1815.
balsamifera (balsam-bearing). June. Canaries. 1779.
fruticosa (shrubby). 1. June. Sicily. 1824.
imbricata (imbricated). 1. August. Portugal. 1804.
la'ta (joyous). 1. June. 1758.
nummulariaefolia (moneypewort-leaved). $\frac{1}{2}$. July. 1800.
ornithopus (bird's-foot). 1. July. Cape of Good Hope. 1816.
spathulæfolia (spatula-leaved). 2. August. 1800.
spino'sa (prickly). 2. June. Levant. 1710.

GREENHOUSE HERBACEOUS.

- E. Ale'ppica* (Aleppo). 1. July. Europe. 1820.
erythrina (erythrina). 1. July. Cape of Good Hope. 1823.
marginata (bordered). 1. June. S. Amer. 1824.
prunifo'lia (plum-leaved). 2. August. 1799. Biennial.
serra'ta (narrow-saw-leaved). 1. July. South Europe. 1710.

STOVE EVERGREENS.

- E. anacamperodes* (anacamperos-like). 1. S. Amer.
antiquorum (antique). 9. April. E. Ind. 1768.
biglandulosa (twin-glanded). 3. Bourbon. 1808.
Bojeri (Bojer's). 4. Scarlet. November. Madagascar.
bracteata (bracted). $1\frac{1}{2}$. August. 1809.
bryo'nii (bryony-like). Scarlet.
bupleurifo'lia (bupleurum-leaved). $1\frac{1}{2}$. August. Cape of Good Hope. 1793.
Canarie'nsis (Canary). 20. July. Canaries. 1697.
cærule'scens (bluish). 3. June. Cape of Good Hope. 1824.
caput Medusæ (great-Medusa-headed). 2. August. Africa. 1731.
pu'mila (dwarf). 1. August. Cape of Good Hope. 1768.
cereifo'rmis (cereal-shaped). 2. April. Cape of Good Hope. 1731.
Commel'ina (Commelin's). August. Africa. 1805.
erispæ (curled). $\frac{1}{2}$. July. Cape of Good Hope. 1819.
cucumer'ina (cucumber-like). $\frac{1}{2}$. June. Cape of Good Hope.
enneago'na (nine-angled). 3. June. Cape of Good Hope. 1790.
fructu'spina (spine-fruited). $\frac{3}{4}$. August. Cape of Good Hope. 1731.
gemma'ta (twin-branched). $\frac{1}{2}$. August. Cape of Good Hope. 1731.
fulgens (blazing). 4. Scarlet. August. Mexico. 1835.

- E. grandidens* (large-toothed). 5. July. Cape of Good Hope. 1823.
grandifo'lia (large-leaved). 6. Sierra Leone. 1789.
Haworthii (Haworth's). 1. May. Cape of Good Hope. 1800.
heptago'na (seven-angled). 3. September. Cape of Good Hope. 1731.
ru'bra (red-spined). 4. September. Cape of Good Hope. 1731.
hy'strix (porcupine). 6. July. Cape of Good Hope. 1695.
la'tea (milky). 4. July. E. Ind. 1804.
Lamarckii (Lamarck's). $1\frac{1}{2}$. July. Cape of Good Hope. 1808.
laurifo'lia (laurel-leaved). 2. Peru. 1820.
linifo'lia (flax-leaved). 2. W. Ind. 1774.
linea'ris (narrow-leaved). July. Vera Cruz. 1824.
lophogo'na (crested-angled). 3. Madagascar. 1824.
magninamma (large-nippled). 3. Mexico. 1823.
mammilla'ris (nipple-angled). 2. July. Cape of Good Hope. 1759.
melifo'rmis (melon-shaped). $\frac{3}{4}$. July. Cape of Good Hope. 1774.
myrtifo'lia (myrtle-leaved). 2. July. Cape of Good Hope. 1699.
odontophy'lia (tooth-leaved). 5. Cape of Good Hope. 1824.
officin'rum (shop). 6. June. Africa. 1597.
pendula (hanging-down). 1. 1808.
procumbens (lying-down). $\frac{1}{2}$. August. Cape of Good Hope. 1763.
puni'cea (scarlet-flowered). 6. April. Jamaica. 1778.
repanda (wavy-edged). 2. August. E. Ind. 1808.
splendens (shining). 4. Scarlet. June. Isle of France. 1826.
squarro'sa (spreading). $\frac{1}{2}$.
tetrago'na (four-angled). 4.
tuberosa (tuberous). $\frac{1}{2}$. July. Cape of Good Hope. 1808.
uncinata (hooked). $\frac{3}{4}$. July. Cape of Good Hope. 1794.
verticillata (whorled). August. W. Ind. 1826.

HARDY EVERGREENS.

- E. amygdaloides* (almond-like). 2. April. England.
variegata (striped-leaved). 2. March. Britain.
characias (characias). 4. April. England.
dendroides (tree-like). $\frac{1}{2}$. July. Italy. 1768.

HARDY HERBACEOUS.

- E. angustifo'lia* (narrow-leaved). 1. Yellow. July. Trinidad. 1827.
Atlantica (Atlantic). 1. June. South Europe. 1818.
diumbellata (double-umbelled). 1. Barbary. 1780.
cæspitosa (turfy). $\frac{1}{2}$. July. Italy. 1820.
Corderiana (Corderi's). 1. May. South Europe. 1821.
denticulata (small-toothed). 1. June. South Europe. 1810.
dulcis (sweet). 1. July. South Europe. 1759.
flavicoma (yellow-haired). $1\frac{1}{2}$. July. South France. 1820.
longifo'lia (long-leaved). 1. June. Nepal. 1823.
multicorymbosa (many-corymbd). 1. July. 1805.
Portlandica (Portland). $\frac{1}{2}$. Britain.
purpurea (purpled). 1. June. France. 1820.

F. truncata (cut-off). July. South Europe. 1820.
— *Valeriana* (Valerian-leaved). July. Siberia. 1818.

— *villosa* (shaggy). 2. June. Hungary. 1820.

EUPHORIA. See NEPHELIUM.

EUPHRA'SIA. Eyebright. (From *euphrasino*, to delight; fabled to cure blindness. Nat. ord., *Figworts* [Scrophulariaceæ]. Linn., 14-*Didynamia* 2-*Angiospermia*. Allied to *Bartsia*.)

Hardy annuals. Seeds, in March or April, in the open border.

E. alpina (alpine). 1. Purple. July. Europe. 1827.

— *linifolia* (flax-leaved). 2. Purple. August. France. 1826.

— *lutea* (yellow). 1½. Purple. August. South Europe. 1816.

EUPOMA'TIA. (From *eu*, well, and *poma*, a lid; the calyptra covering the unexpanded flower like an extinguisher. Nat. ord., *Anonads* [Anonaceæ]. Linn., 12-*Icosandria* 3-*Polygynia*.)

Greenhouse evergreen shrub. Seeds in a slight hotbed, in spring; cuttings of ripened shoots in sand, under a bell-glass; sandy peat and fibry loam. Winter temp., 40° to 45°.

E. laurina (laurel-like). 4. Greenish-yellow. N. Holland. 1824.

EURYA. (From *eury*s, large; referring to the flowers. Nat. ord., *Theads* [Ternströmiaceæ]. Linn., 23-*Polygamia* 1-*Monœcia*. Allied to *Freziera*.)

Greenhouse evergreens. Cuttings of ripened shoots in early autumn or spring, in sandy peat, with a glass over them; peat and loam, both fibry, with a portion of silver-sand. Winter temp., 40° to 48°.

E. China (Chinese). 2. White. June. China. 1823.

— *multiflora* (many-flowered). 2. White. Nepal. 1823.

EURYALE. (The name of one of Ovid's Gorgons, whose heads he fabled to be covered with vipers instead of hair; referring to the fierce aspect of the plant in flower. Nat. ord., *Waterlilies* [Nymphæaceæ]. Linn., 13-*Polyandria* 1-*Monogynia*. Allied to *Victoria* regia.)

The leaves of Euryale in the East Indies vie with those of *Victoria*; but its flowers are inconspicuous. The seeds are eatable. Stove aquatic. Seeds and divisions; loamy soil, in a tub set in water, and kept at a high temperature. Summer temp., 60° to 80°; winter, 55° to 60°.

E. ferax (fierce). Red. August. India. 1809.

EURYBIA. (From *euribies*, wide-spreading; referring to the roots. Nat. ord., *Compositæ* [Asteraceæ]. Linn., 19-*Syngenesia* 2-*Superflua*. Allied to *Aster*.)

All the greenhouse species are from New Holland. Division of the plant in spring, like an autumn *Aster*; common soil, Usual greenhouse temperature.

HARDY HERBACEOUS.

E. corymbosa (corymbed). 2. White. July. N. Amer. 1765.

GREENHOUSE EVERGREENS.

E. aculeata (prickly-leaved). 2. White. March. 1818.

— *argophylla* (white-leaved). 10. White. March. 1804.

— *chryso-tricha* (golden-haired). 2.

— *erubescens* (blushing). 3. Red. May.

— *glutinos*a (clammy). Pale violet.

— *lyrata* (lyre-leaved). 3. White. September.

N. S. Wales. 1812.

— *myrsinoides* (myrsine-like). 3. Pale purple.

May. N. Holland. 1835.

EURYCLES. (From *eury*s, broad, and *klas*, a branch; referring to the broad leaves or branch-like footstalks. Nat. ord., *Amaryllids* [Amaryllidaceæ]. Linn., 6-*Hexandria* 1-*Monogynia*. Allied to *Calostemma*.)

Store bulbs, requiring rest in winter. Seeds, but chiefly offsets; light, sandy loam, and a little vegetable-mould, or very rotten cow-dung; watered and heat given when growing, drier and cooler when resting. Summer temp., 55° to 80°; winter, 45° to 55°.

E. Amboinensis (Amboyna). 2. White. May. Amboyna. 1759.

— *Australasica* (Australasian). 1. White. May. N. Holland. 1821.

EURYCOMA. (From *eury*s, large, and *kome*, a head of hair; in reference to fringe-like hairs on the ovary. Nat. ord., *Connarads* [Connaraceæ]. Linn., 5-*Pentandria* 1-*Monogynia*.)

Stove evergreen. For culture see *CONNARUS*.

E. longifolia (long-leaved). 20. Purple. Sumatra. 1826.

ERTHALIA. See GENTIANA.

EUSTEGIA. (From *eu*, good, and *steges*, a covering; referring to the bractes. Nat. ord., *Spurge-worts* [Euphorbiaceæ]. Linn., 5-*Pentandria* 2-*Digynia*. Allied to *Peplonia*.)

Greenhouse evergreen trailer. Cuttings in sandy soil, and by trailing runners; peat and loam. Winter temp., 38° to 45°.

E. hastata (halbert-leaved). 1. White. July. Cape of Good Hope. 1816.

EUSTOMA. (From *eustoma*, a beautiful mouth; referring to the opening of the flower. Nat. ord., *Gentian-worts* [Gentianaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Leianthus*.)

Seeds sown in a slight hotbed in March, and transplanted into the border in May, and some in the end of April. *E. exaltatum* by division, and cool greenhouse treatment.

E. exaltatum (tall). 2. Purple. July. Mexico. 1804. Greenhouse herbaceous.

— *Russellianum* (Russell's). Purple. August. Texas. 1835. Hardy biennial.

— *silenifolia* (silene-leaved). 1. White. July. Isle of Providence. 1804. Hardy annual.

EU'STREPHEUS. (From *eu*, good, and *strepheo*, to twine; literally, beautiful twiners. Nat. ord., *Lilyworts* [Liliaceæ]. Linn., 6-*Hexandria* 1-*Monogynia*. Allied to *Dianella*.)

Half-hardy evergreen twiners, from New South Wales, with pale purple flowers. Cuttings of firm young shoots in early autumn or spring, in sandy soil, under a glass; sandy peat. They will bear the same treatment as *Dianella*.

E. angustifolius (narrow-leaved). 3. July. 1820.
— *latifolius* (broad-leaved). 3. June. 1800.

EUTA'SSA and **EUTA'CTA**, synonymes for *Araucaria Cunninghamii* and *excelsa*.

EUTA'XIA. (From *eutaxia*, modesty; referring to the delicate aspect of the flowers. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 10-*Decandria* 1-*Monogynia*. Allied to *Dillwynia*.)

Greenhouse evergreen shrubs, from New Holland. Cuttings of short young shoots, getting firm at the base, in sand, under a bell-glass, in April or May; peat and loam, in equal proportions. Winter temp., 40° to 45°. *E. myrtifolia*, with a little protection, will do against a wall near London.

E. Baxteri (Baxter's). 6. Yellow. 1830.
— *myrtifolia* (myrtle-leaved). 14. Orange. August. 1803.

— *pungens* (pungent). 4. Orange. May. 1825.

EUTE'RPE. (After *Euterpe*, one of the nine Muses. Nat. ord., *Palms* [Palmaeæ]. Linn., 21-*Monœcia* 6-*Hexandria*. Allied to *Areca*.)

Stove palms. Seeds; rich loam. Summer temp., 60° to 85°, and moist; winter, 50° to 60°.

E. Caribæa (Caribbean). 30. W. Ind. 1656.
— *globosa* (round-fruited). 30. Mauritius. 1819.
— *montana* (mountain). Yellow. Grenada. 1815.

Areca olera'cea and *pisifolrmis* are sometimes included erroneously in this genus.

EU'THALES. (From *eu*, well, and *thaleo*, to push or sprout. Nat. ord., *Goodeniads* [Goodeniaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Leschenaultia*.)

A singular characteristic of *Goodeniads* may be seen in the flower of *Leschenaultia*; the stigma is placed in the bottom of a cup, or indusium, and when the pollen is shed, the cup closes over the stigma; whether it does so in others has not been recorded. Greenhouse herbaceous perennials, from New Holland. Cuttings of young shoots getting firm, in April or May, or early in autumn; peat and loam. Winter temp., 35° to 45°.

E. macrophylla (large-leaved). 4. Yellow, brown. July. 1839.

— *trine'ris* (three-nerved). 1. Purple, yellow. July. 1803.

EUTHA'MIA. See *SOLIDA'GO*.

EUTOCA. (From *eutokos*, fruitful; referring to the abundance of seeds. Nat. ord., *Hydrophylls* [Hydrophyllaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Nemophila*.)

Hardy annuals and biennials, from North America. Seeds sown in the border in April, or on a slight hotbed, and transplanted; sow or plant thinly, or the leaves will become diseased.

HARDY ANNUALS.

E. divaricata (straggling). Light violet. May. 1833.

— *Menziesii* (Menzies's). Purple. June. 1826.

— *parviflora* (small-flowered). Blue. June. 1826.

— *viscida* (clammy-haired). 2. Brown, rose. 1834.

— *Wrangeliana* (Wrangel's). 1. Blue. August. 1835.

HARDY BIENNIALS.

E. Franklini (Franklin's). 1. Pink. May. 1827.

— *multiflora* (many-flowered). 14. Pink. June. 1826.

— *sericea* (silky). 1. Blue. June. 1827.

EUXE'NIA. (From *eu*, beautiful, and *xenos*, a stranger. Nat. ord., *Composites* [Asteraceæ]. 19-*Syngenesia* 5 *Segregata*. Allied to *Petrobium*.)

Greenhouse evergreen. Cuttings of young shoots in spring or autumn, in sand, under a bell-glass; peat and loam. Winter temp., 40° to 48°.

E. grata (pleasant). 2. Yellow. Chili. 1825.

EVELY'NA. (Named after *Johanna Evelyn*, our first good writer on trees, &c. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-*Gynandria* 1-*Monandria*. Allied to *Bletia*.)

Stove orchids, some of which are terrestrial, and may be grown in loam and peat, like *Bletia*; the others in shallow baskets and blocks of wood, with sphagnum-moss. Summer temp., 60° to 83°; winter, 55° to 60°; divisions.

E. bracte'ens (bracted). Red. July. Merida.

— *capitata* (headed). White. August. Sierra Neva.

— *columnaris* (columned). White. Purple. June. Sierra Neva.

— *ensa'ta* (sword-leaved). Carmine. August. Sierra Neva.

— *flavescens* (yellowish). Yellow. May. Truxillo.

— *furfuracea* (purplish). Scarlet. June. Merida.

— *kermesina* (carmine). Bright carmine. January. Mariquita.

— *lupulina* (lupine-like). Rose. August. Sierra Neva.

EVENING FLOWER. *He'sperus*.

EVENING PRIMROSE. *Oenothera*.

EVERGREENS are such plants as do not shed all their leaves at any one time during the year.

EVERGREEN THORN. *Crate'gus pyracantha*.

EVERLASTING. *Gnaphalium*.

EVERLASTING PEA. *La'thyrus latifolius*.

EVO'DIA. (From *evodia*, sweet scent; referring to that of the leaves. Nat. ord., *Rueworts* [Rutaceæ]. Linn., 4-*Tetrandria* 1-*Monogynia*. Allied to *Pilocarpus*.)

Stove evergreen shrub. Cuttings of half-ripened shoots in sand, under a bell-glass, and in bottom-heat, in April; light, fibry loam. Summer temp., 55° to 75°; winter, 50° to 55°.

E. triphy'lla (three-leaved). 7. White. E. Ind. 1821.

Evo'LVULUS. (From *evolve*, the opposite to *Convolvulus*; referring to the plants not twining. Nat. ord., *Bindweeds* [Convolvulaceæ]. Linn., 5-Pentandria 2-Digynia. Allied to *Convolvulus*.)

For culture see *CONVOLVULUS*. All blue-flowered trailers, except where otherwise specified.

HARDY ANNUAL.

E. Nuttallia'nus (Nuttall's). $\frac{1}{2}$. July. N. Amer. 1824.

STOVE EVERGREENS.

E. cæruleus (sky-blue). July. Jamaica. 1845.
— *lanceolata'sus* (spear-head-leaved). June. S. Amer. 1818.

— *latifolius* (broad-leaved). 2. White. June. Brazil. 1819.

— *purpureo-cæruleus* (purplish-blue). $1\frac{1}{2}$. July. Jamaica. 1845.

— *villo'sus* (shaggy). 1. July. S. Amer. 1810.

STOVE ANNUALS.

E. alsinoides (chickweed-like). $\frac{1}{2}$. July. E. Ind. 1817.

— *emarginatus* (end-notched). 1. September. E. Ind. 1816.

— *Ganges'ticus* (Ganges). 1. July. E. Ind. 1820.

— *hirsutus* (hairy). $\frac{1}{2}$. July. Trinidad. 1818.

— *incanus* (hoary). $\frac{1}{2}$. July. S. Amer. 1810.

— *linifolius* (flax-leaved). 2. August. Jamaica. 1732.

— *nummularis* (moneywort-like). $\frac{1}{2}$. September. Jamaica. 1816.

— *sericeus* (silky). $\frac{1}{2}$. White. July. W. Ind. 1816.

E'XACUM. (From *ex*, out of, *ago*, to drive; supposed virtue of expelling poison. Nat. ord., *Gentianworts* [Gentianaceæ]. Linn., 4-Tetrandria 1-Monogynia. Allied to *Chironia*.)

Hardy annuals. Sow in April, in a moist border, in which there is a portion of peat.

E. macranthum (large-flowered). $1\frac{1}{2}$. Purple. December. Ceylon. 1853.

— *pulchellum* (pretty). $\frac{1}{2}$. Pink. August. New Jersey. 1826.

— *tetrago'num* (four-angled). $1\frac{1}{2}$. Blue. August. Nepaul. 1820.

— *bicolor* (two-coloured). 1. Pale purple. June. Corcan. 1846.

EXCECA'RIA. (From *excæco*, to blind; the juice and smoke of burning branches injure the eye-sight. Nat. ord., *Spurge-worts* [Euphorbiaceæ]. Linn., 22-Diacia 13-Polyandria. Allied to *Gussonia* and *Hippomane*.)

Stove evergreen shrubs, with white flowers; cuttings in sandy soil, under a bell-glass, in spring or autumn; fibry, sandy loam. Summer temp., 60° to 75°; winter, 45° to 55°.

E. Agallo'cha (Ceylon). 5. May. E. Ind. 1820.

— *glandulosa* (glanded). 5. May. Jamaica. 1821.

— *serrata* (saw-leaved). 6. May. Chili. 1796.

EXCRESCENCE. Independently of *Galls*, which are caused by the punctures of insects, and the swellings which always accompany *Canker*, the excrescences which injure the gardener's crops are

very few. That which appears above the point of union between the scion and stock is caused by the former being the freer grower of the two, and is a warning that should be remembered, for it curtails the longevity of the tree, the supply of sap gradually becoming inefficient. The excrescences which occur upon the branches of some apples, as those of the codling and June-eating, cannot be looked upon as disease, for they arise from congeries of abortive buds, which readily protrude roots if buried in the soil, making those among the few apples which can be propagated by cuttings. Of a similar nature are the huge excrescences so prevalent on aged oaks and elms. Bulbous excrescences are formed upon the roots of many plants if compelled to grow upon a soil drier than that which best suits them. This is the case especially with two grasses, *Phle'um prate'ns* and *Alope'curus geniculatus*, and is evidently a wise provision of a nature to secure the propagation of the species, for those bulbs will vegetate long after the remainder of the plant has been destroyed by the excessive dryness of the soil.

EXOGE'NIUM. (From *exo*, external, and *gonu*, a joint; referring to the stems. Nat. ord., *Bindweeds* [Convolvulaceæ]. Linn., 5-Pentandria 1-Monogynia. Allied to *Ipomea*.)

E. purga is the true source of the best kind of Jalap. A beautiful crimson-flowered, greenhouse twiner, not a stove climber, as mentioned erroneously in books: we have even flowered it beautifully in the open air. Greenhouse evergreen twiners; cuttings of short side-shoots in sandy soil, under a bell-glass, and in bottom-heat. Summer temp., 55° to 75°; winter, 45° to 50°.

E. filiforme (thread-shaped). 10. Purple. October. W. Ind. 1823.

— *purga* (purgative. *True Jalap*). 10. Rose, purple. September. Vera Cruz. 1838.

— *repandum* (wavy-edged). 10. Scarlet. June. W. Ind. 1793.

EXOSTEMMA. (From *exo*, externally, and *stemma*, a crown; referring to the flower-heads. Nat. ord., *Cinchonads* [Cinchonaceæ]. Linn., 5-Pentandria 1-Monogynia. Allied to *Luculia*.)

Stove evergreen tree. Cuttings of ripe young shoots in sand, under a glass, in bottom-heat; loam and peat. Summer temp., 60° to 80°; winter, 60° to 55°.

E. longiflorum (long-flowered). 30. White. June. Caraccas. 1820.

EXOTICS. Plants belonging to a country different from that in which they are growing.

EXTRAVASATED SAP may arise from five causes.

1. The acrid or alkaline state of the sap, which has been considered already, when treating of the *Canker*.

2. Plethora, or that state of a plant's excessive vigour in which the sap is formed more rapidly than the circulatory vessels can convey it away. When this occurs, rupture must take place. If the extravasation proceeds from this cause, there is but one course of treatment to be pursued—root-pruning, and reducing the staple of the soil, by removing some of it, and admixing less fertile earthy components, as sand or chalk. This must be done gradually, for the fibrous roots that are suited for the collection of food from a fertile soil are not at once adapted for the intromission of that from a less abundant pasturage. Care must be taken not to apply the above remedies before it is clearly ascertained that the cause is not an unnatural contraction of the sap vessels, because, in such case, the treatment might be injurious rather than beneficial. We have always found it arising from an excessive production of sap, if the tree, when afflicted by extravasation, produces at the same time super-luxuriant shoots.

3. Local contraction of the sap vessels.—If the extravasation arises from this cause, there is usually a swelling of the bark immediately above the place of discharge. In such a case the cultivator's only resource is to reduce cautiously the amount of branches, if the bleeding threatens to be injuriously extensive, otherwise it is of but little consequence, acting, like temporary discharges of blood, as a relief to the system.

4. The extravasation of the sap from a wound is usually the most exhausting, and as the wound, whether contused or cut, is liable to be a lodgement for water and other foreign bodies opposed to the healing of the injured part, the discharge is often protracted. This is especially the case if the wound be made in the spring, before the leaves are developed, as in performing the winter pruning of the vine later than is proper. In such case, the vine always is weakened, and in some instances it has been destroyed.

5. Heat attended by dryness of the soil, as during the drought of summer, is very liable to produce an unnatural exudation. This is especially noticeable upon the leaves of some plants, and is popularly known as *honey-dew*. It is

somewhat analogous to that outburst of blood, which in such seasons is apt to occur to man, and arises from the increased action of the secretory and circulatory system to which it affords relief. There is this great and essential difference, that, in the case of plants, the extravasation is upon the surface of the leaves, and in proportion, consequently, to the abundance of the extruded sap are their respiration and digestion impaired.

Azaleas sometimes, but rarely, have the hairs on their leaves, especially on their lower surface, beaded, as it were, with a resinous exudation. This can scarcely be called a disease. It is never found but upon plants that have been kept in a temperature too high, and in a soil too fertile. It is an effort to relieve the surcharged vessels, and occurs in various forms in other plants.

The various successful applications of liquids to plants, in order to prevent the occurrence of the honey-dew and similar diseases, would seem to indicate that a morbid state of the sap is the chief cause of the honey-dew, for otherwise it would be difficult to explain the reason why the use of a solution of common salt in water, applied to the soil in which a plant is growing, can prevent a disease caused by insects. But if we admit that the irregular action of the sap is the cause of the disorder, then we can understand that a portion of salt introduced in the juices of the plant would naturally have an influence in correcting any morbid tendency, either preventing the too rapid secretion of sap, stimulating it in promoting its regular formation, or preserving its fluidity; and that by such a treatment the honey-dew may be entirely prevented, we have often witnessed when experimentalizing with totally different objects. Thus we have seen plants of various kinds, which have been treated with a weak solution of common salt and water, totally escape the honey-dew, where trees of the same kind growing in the same plot of ground not so treated, have been materially injured by its ravages.

EYE-BRIGHT. *Euphrasia*.

EYSENHARTIA. (Named after *Eysenhardt*, a Prussian botanist. Nat. ord., *Leguminous Plants* [Fabacæ]. Linn., 17-*Diadelphia* 4-*Decandria*. Allied to *Amorpha*.)

Cuttings of young shoots in sand, in bottom-

heat, in April or May; loam and peat. Summer temp., 60° to 85°; winter, 50° to 55°.

E. amorphoides (amornha-like). 15. Pale yellow. June. Mexico. 1838.

F.

FA'BA. Garden Bean. (From *phago*, to eat. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 17-*Diadelphia* 4-*Dicandria*.)

Botanists place the Garden Bean among the Vetches (*Vicia*); but, for practical purposes, we prefer keeping it distinct, under the old name, which now gives the comprehensive designation Fabaceæ to this large assemblage of plants. Hardy annual. For culture, see BEAN.

F. vulgaris (common). 3. White. July. Egypt. — *equina* (horse). 3. Purple. July.

FABA'GO. See ZYGOPHYLLUM.

FABIA'NA. (Named after *F. Fabiano*, a Spaniard. Nat. ord., *Nightshades* [Solanaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Vestia*.)

A half-hardy evergreen shrub, having the aspect of a Cape Heath. Seeds in a hotbed, in March; cuttings of firm young shoots in sand, under a bell-glass, in April; set at first in a cold greenhouse or pit, and then plunged in a mild bottom-heat; sandy peat. Winter temp., 40° to 48°.

F. imbricata (scaly). 3. White. May. Chili. 1838.

FABRI'CIA. (Named after *Fabricius*, a Swedish naturalist. Nat. ord., *Myrtle-blooms* [Myrtaceæ]. Linn., 12-*Icosandria* 1-*Monogynia*. Allied to *Leptospermum*.)

Like *Melaleuca*, *Beaufortia*, *Eucalyptus*, *Metrosideros*, and other Australian Myrtleblooms, they are peculiarly adapted for winter gardens, either under glass, or for planting against heated conservatory walls. Australian evergreens. By seeds in a hotbed; but as the plants thus raised are long in flowering, more generally by cuttings of the young shoots getting firm in summer, under a bell-glass, and in sand; sandy loam and peat. Winter temp., 37° to 45°.

F. laevigata (smooth-leaved). 3. Yellow. June. 1783.

— *myrtifolia* (myrtle-leaved). 3. Yellow.

— *sericea* (silky). 2. Yellow. 1820.

— *stricta* (erect). 3. June. 1827.

FADYE'NA. (Named after *Dr. Fadyen*, author of a Flora of Jamaica. Nat. ord., *Ferns* [Polypodiaceæ]. Linn., 24-*Cryptogamia* 1-*Filices*. Allied to *Aspidium*.)

This must not be confounded with *Endlicher's Fadge'nia*, which belongs to *Garryads*. Stove Fern. Division; loam and peat. See FERNS.

F. prolifera (proliferous). †. Brown. May. Jamaica. 1843.

FAGE'LIA. (Named after *Fagel*, a botanist. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 17-*Diadelphia* 4-*Dicandria*. Allied to *Cajana*.)

Greenhouse evergreen twiner. Seeds, steeped

in warm water, sown in light soil, and put in a mild hotbed. Cuttings of the points of young shoots before they get hard, in sand, under a bell-glass; peat and loam, both sandy and lumpy. Winter temp., 40° to 48°.

F. bitumino'sa (pitchy). 4. Yellowish-purple. June. Cape of Good Hope. 1774.

FAGOPY'RUM. (From *phago*, to eat, and *pyren*, a kernel; referring to the triangular kernel of the nut. Nat. ord., *Buckwheats* [Polygoniaceæ]. Linn., 8-*Oc-tandria* 3-*Trigynia*. Allied to *Polygonum*.)

Hardy annual. Seed in April. Common soil.

F. cymosum (cymed). Pink. July. Nepaul. 1827.

FAGRE'A. (Named after *Dr. Fagréus*. Nat. ord., *Loganiads* [Loganiaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Logania*.)

Loganiads stand foremost among the most deadly poisons in the vegetable kingdom. Stove evergreen trees. Cuttings of young shoots beginning to get firm, in April, in sand, under a bell-glass, and in bottom-heat; peat and loam. Summer temp., 60° to 80°; winter, 55° to 60°.

F. obovata (reversed-egg-leaved). 20. White. Silhet. 1816.

— *Zeylanica* (Ceylon). 12. White. Ceylon. 1816.

FA'GUS. The Beech. (From *phago*, to eat; referring to the edible seeds. Nat. ord., *Mastworts* [Corylaceæ]. Linn., 21-*Monæcia* 9-*Polyandria*.)

By seeds, gathered in autumn, dried in the sun, kept dry during the winter, and sown in light soil, in March. They might be sown in the autumn, only mice, &c., make havoc among them; loamy soil, over chalk, suits them well, as the roots seldom run deep. The different varieties are propagated by grafting in March and April. The male catkins, when swept up, are often used for packing fruit, and filling pillows for the poor man's bed. The morel and the truffle are chiefly found under beeches.

EVERGREENS.

F. betuloides (birch-like). 50. Magellan. 1830. Hardy.

— *Cunninghamii* (Cunningham's). New Zealand. 1843. Half-hardy.

HARDY DECIDUOUS.

F. antartica (antarctic). 50. Magellan. 1830.

— *castaneaefolia* (chestnut-leaved). June. N. Amer.

— *Comptoniaefolia* (Comptonia-leaved). May.

— *ferruginea* (American rusty). 30. June. N. Amer. 1766.

— *Caroliniana* (Carolina). Carolina.

— *purpurea* (purple). April. Germany.

— *syloatica* (common wood). 70. June. Britain.

— *Americana* (American). 100. May. N. Amer.

— *atro-rubens* (dark-red-leaved). 30. June

— *cristata* (crested-leaved). 30. May.

— *cuprea* (copper-coloured-leaved). 70. May.

— *fohis argenteis* (silver-leaved). May.

— *fo'tia aureis* (golden-leaved). June.

— *heterophylla* (various-leaved). 40. April.

— *incisa* (cut-leaved). 10. June.

— *pendula* (pendulous). May. Gardens.

FAL'KIA. (Named after *Falk*, a Swedish botanist. Nat. ord., *Bindweeds* [Convolvulacæe]. Linn., 5-*Pentandria* 1-*Digynia*.)

Greenhouse evergreen creeper. Cuttings under a hand-glass, in sandy peat, in April or May; peat and loam. Winter temp., 35° to 45°.

F. repens (creeping). †. Pink. July. Cape of Good Hope. 1774.

FALL OF THE LEAF. Dr. Lindley thus explains this phenomenon:—In the course of time a leaf becomes incapable of performing its functions; its passages are choked up by the deposit of sedimentary matter; there is no longer a free communication between its veins and the wood and liber. It changes colour, ceases to decompose carbonic acid, absorbs oxygen instead, gets into a morbid condition, and dies; it is then thrown off. This phenomenon, which we call the fall of the leaf, is going on the whole year. Those trees which lose the whole of their leaves at the approach of winter, and are called deciduous, begin, in fact, to cast their leaves within a few weeks after the commencement of their vernal growth; but the mass of their foliage is not rejected till late in the season. Those, on the other hand, which are named evergreens, part with their leaves much more slowly; retain them in health at the time when the leaves of other plants are perishing; and do not cast them till a new spring has commenced, when other trees are leafing, or even later. In the latter class, the function of the leaves is going on during all the winter, although languidly; they are constantly attracting sap from the earth through the spongioles, and are therefore in a state of slow but continual winter growth.

FALLOWING is needless where there is a due supply of manure, and a sufficient application of the spade, fork, and hoe to the soil. Fallowing can have no other beneficial influence than by destroying weeds, aiding the decomposition of offensive exuvie, exposing the soil to the disintegrating influence of the air, and accumulating in it decomposing matter. Now all these effects can be produced by judicious manuring, and a constant application of the hoe and fork.

FALSE BLOSSOM is the very erroneous name applied sometimes to the male flowers, which, containing only stamens, do not produce fruit, yet are essential for causing fruitfulness in what gardeners

call the *true blossoms* which contain the pistils.

FAN PALM. *Co'rypha*.

FARA'MEA. (The derivation has not been explained; probably a commemorative one. Nat. ord., *Cinchonads* [Cinchonacæe]. Linn., 3-*Triandria* 1-*Monogynia*. Allied to the Coffee-tree.)

A sweet-scented stove evergreen bush, long known in our gardens as *Tetrame'rium*. Cuttings of firm young shoots in May, in sand, under a bell-glass, in bottom-heat; peat and loam, both fibry, with silver-sand, and lumps of charcoal.

F. odoratissima (most-fragrant). 6. White. W. Ind. 1793.

FARINA, a name for the pollen or fertilizing dust produced by the anthers, or male organs, of a flower.

FARM-YARD MANURE. See DUNG.

FARSE'TIA. (Named after *Farseti*, an Italian botanist. Nat. ord., *Crucifers* [Brassicacæe]. Linn., 15-*Tetradynamia*. Allied to *Alyssum*.)

Hardy annuals sow in border, in March or April; hardy perennials, by division and seeds; half-hardy evergreens, by cuttings under a hand-light, in May, in sandy loam. Sandy loam; good for rock-works and mounds. The half-hardy should have the protection of a pit in winter.

HARDY.

F. cheiranthifolia (wallflower-leaved). 1. Yellow. July. Levant. 1818. Annual.

— *clypeata* (buckler-podded). 1½. Yellow. July. South Europe. 1596. Herbaceous perennial.

HALF-HARDY EVERGREENS.

F. cheiranthoides (stock-like). 1. White, purple. July. Levant. 1788.

— *eriocarpa* (woolly-fruited). 1. Yellow. July. Greece. 1820.

— *lunariaefolia* (lunaria-like). 1. Yellow. July. Archipelago. 1731.

— *suffruticosa* (sub-shrubby). 1. Violet. April. Persia. 1823.

FASCICLE is the name applied to flowers on small stalks variously sub-divided and attached to one flower-stem, and collected into a close bundle, level at the top, as in the Sweet William.

FEABERRY. A local name for the Gooseberry.

FEATHERS. See ANIMAL MATTERS.

FE'DIA. (A word of unknown origin. Nat. ord., *Valerianworts* [Valerianacæe]. Linn., 2-*Diandria* 1-*Monogynia*. Allied to *Centranthus*.)

Hardy annuals. Seeds in the open border, in April.

F. cornucopiae (cornucopia-fruited). 1. Red. July. South Europe. 1796.

— *graciliflora* (slender-flowered). †. Pink. July. Algiers.

FELI'CIA. (From *felix*, happy; from their cheerful appearance. Nat. ord.,

Composites [Asteraceæ] Linn., 19-Syn-genesia 2-Frustranea. Allied to Aster.)

Natives of the Cape of Good Hope. Annuals, sown in open border, in April; evergreens require the protection of a cool greenhouse, and may be easily raised by cuttings under a hand-light, in May; soil, chiefly sandy loam.

HARDY ANNUAL.

F. tenella (delicate). Violet. June. 1769.

GREENHOUSE EVERGREENS.

F. angustifolia (narrow-leaved). 4. Lilac. May. 1812.

— *glabra* (smooth). 6. Blue. May. 1804.

— *echinata* (prickly). Yellow. May. 1820.

— *reflexa* (bent-back). Red, white. February. 1759.

Some of the above have been described under the genus *Aster*.

FELWORT. *Swe'rtia*,

FEMALE FERN. *Asple'nium fi'lix-fæ'mina*.

FENCES are employed to mark the boundary of property, to exclude trespassers, either human or four-footed, and to afford shelter. They are either live fences, and are then known as *hedges*; or dead, and are then either *banks*, *ditches*, *palings*, or *walls*; or they are a union of two, to which titles the reader is referred.

FENNEL (*Anethum feni'culum*) in a dry soil is longest-lived. It is propagated both by offsets, partings of the root, and by seed, any time between the beginning of February and the end of April. The best season for sowing is autumn, soon after the seed is ripe, at which time it may also be planted.

Insert the plants a foot apart, and the seed in drills, six or twelve inches asunder, according as it is intended that the plants are to be transplanted or to remain.

When advanced to the height of four or five inches, if they are intended for removal, the plants are pricked out eight inches apart, to attain strength for final planting in autumn or spring. Water must be given freely at every removal, and until established, if the weather is at all dry.

The stalks of those that are not required to produce seed must be cut down as often as they run up in summer. If this is strictly attended to the roots will last for many years; but those which are allowed to ripen their seed seldom endure for more than five or six.

FENNEL-FLOWER. *Nigella*.

FENUGREEK. *Trigon'la*.

FE'NZIA. See DIANTHO'DIS.

FERNANDE'ZIA. (After Fernandez, a Spaniard. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-Gynandria 1-Monandria. Allied to Brassia.)

Stove orchids, with yellow flowers. Divisions; turfy peat and potsherds, raised in the pots, and well drained. Summer temp., 65° to 90°, with moist atmosphere; winter, 60°, and drier.

F. acuta (acute-leaved). $\frac{1}{2}$. June. Trinidad. 1834.

— *elegans* (elegant). $\frac{3}{4}$. June. Trinidad. 1817.

— *longifolia* (long-leaved). July. Merida.

— *lunifera* (crescent-tipped). July. Manila. 1840.

— *robusta* (robust). May. Guatemala. 1841.

FERN'E'LIA. (Named after J. Fernel, a French physician. Nat. ord., *Cinchonads* [Cinchonaceæ]. Linn., 4-Tetrandria 1-Monogynia. Allied to Condalia.)

Stove evergreen shrubs. Cuttings of firm young shoots in May, in sand, under a bell-glass, and in bottom-heat; peat and loam, lumpy and sandy. Summer temp., 60° to 80°; winter, 50° to 55°.

F. buxifolia (box-leaved). Isle of France. 1816.

— *obovata* (reversed-egg-leaved). Isle of France. 1816.

FERO'NIA. (After Feronia, the goddess of the groves. Nat. ord., *Citronworts* [Aurantiaceæ]. Linn., 10-Decandria 1-Monogynia. Allied to the Orange.)

The young leaves, when bruised, are said to be deliciously fragrant; the flowers and wood also partake of the fragrance of the orange and citron. Stove evergreen. Cuttings of ripe young shoots in spring or summer, in sandy peat, under a bell-glass, and in bottom-heat; loam, peat, rotten dung, and a little sand. Summer temp., 60° to 80°; winter, 45° to 55°.

F. elephan'tum (elephant-apple). 4. Blush. April. E. Ind. 1804.

FERNS. STOVE FERNS.

Propagation: by Division.—Any species of Fern that sends out stolons, or creeping stems underground, readily increases by division. This requires considerable care. They should never be divided till the parts to be separated have a portion of roots to each. Turn the plants out of the pots, and with a sharp knife divide the plants into as many parts as have roots and a small ball; pot them into pots only a little larger than the little ball; drain them well, give a gentle watering, and place them in a shady place till they begin to grow again, and send up fresh fronds.

By Young Buds on the Fronds.—Several species produce miniature or embryo plants on the fronds. These should be pegged down in a pot filled with the proper soil, and placed so near to the parent plant as to allow the fronds to remain attached to it. When the buds have made roots into the new soil, and pushed forth some new fronds, they should be detached from the parent, and potted into 2½-inch pots, gently watered, and placed in a shady place. Some few kinds have these buds or knobs so strongly developed, that they may, when in a

sufficiently forward state, be cut off and potted at once. Examples of this kind of bud may be observed in *Pteris palmaria*, *P. effusa*, *Dareia rhizophyllum*, and *Woodwardia radicans*.

By Seed.—Several of the finest Ferns cannot be increased by division, or, if they can, several years elapse. If right means are followed, they may be raised by seed. This requires a constantly humid, warm atmosphere, and little, if any, sunshine. Procure a wide earthen pan, a hand or bell-glass that will go within it, and rest on the bottom, and a shallow, wide pot that will stand the within the glass and above the rim of the pan two or three inches. Fill this pot half full of potsherds, and upon them a sufficient number of small pieces of turfy peat, mixed with small pieces of sand stone, about the size of peas, to come up to the pot. Then take the frond of any Fern that is full of spores or seeds, and, with the hand, brush them off upon the prepared pot, set it in the pan, place the glass over the pot, and fill the pan nearly with water. Place the whole in the warmest part of the stove, shading it from the sun. The small pieces of turf and stone can be easily separated, and the seedlings on each put into small pots, without any danger of destroying them by the process of potting. In the moist atmosphere of the orchid-house, several species of Fern will come up spontaneously in the pots, baskets, and upon the blocks. These may be carefully detached as soon as they are large enough, and potted in small pots, placed for a time in a shady situation, and they will soon make nice, bushy plants.

Soil.—Ferns require a light, open soil. A compost of sandy, fibrous peat two parts, turfy loam one part, and leaf-mould one part, with a free admixture of sand, will suit them well.

Summer Culture.—Temperature, 65° minimum, 75° maximum by day, and 60° by night.

Time of Potting.—Early in March, drain well, and give a moderate shift. Small plants may be potted twice, the second time the first week in July.

Watering.—Ferns are like Heaths, if they once get thoroughly dry they will perish, therefore keep them constantly well watered, more especially when the pots are full of roots. Should they by any chance appear to be suffering severely from drought, take such and let them

stand in a vessel of water, that will cover the top of the pot, for an hour or two. This will thoroughly wet every part of the ball, and often recover the plant. If such a convenience is at hand, the smaller Ferns, like other stove plants, will be greatly benefited by a few weeks' sojourn in the middle of summer in a deep, cold pit. Here they should be well supplied with water, and nearly every afternoon, about three o'clock, have a gentle syringing, shutting them up close afterwards. As soon as the nights begin to be cold in September, remove them back again into the stove, and give them an extra supply of water for a short time, till they become used to the drier atmosphere.

Winter Culture.—Temperature, 60° maximum, and 55° minimum by day; 52° by night. During this season, rather less water will be required. Remove all decaying fronds, and give them a top-dressing in December. This will carry them through till the potting season arrives in March.

Insects.—The green fly and thrip will frequently appear on them. Smoking with tobacco will destroy them both.

GREENHOUSE FERNS.

Propagation.—The same methods of increase suit the greenhouse varieties, and also the same compost. The only difference is in the temperature. In summer they may be set out of doors with the rest of the greenhouse inhabitants, and brought into it as soon as there is any danger of frost. The great advantage of growing Ferns in a greenhouse is, that they fill up many a corner where nothing else will grow.

HARDY FERNS.

Propagation: by Division.—All that produce side-shoots may be increased by division. If they are planted out in a bed, or on rock-work, they should be taken up and divided into pieces, with a portion of earth to each. They may be replanted; but a better plan is to pot them, and place them in a cold frame, kept close, and shaded till they make fresh roots and fronds. Scarce kinds may be increased by seed. Even the rare *Woodsia ilvensis* has been increased by seed. Something of the same method as that described for stove Ferns must be adopted for hardy ones. If some small sand-stones be placed in a damp,

shady place, and the Fern seed be scattered upon them, and then be covered with a hand-glass, the seed will germinate, and the stones will be covered with Ferns. For the more rare kinds a little extra care will be necessary. Sow them upon rough pieces of dead turf, place them under a hand-glass, in a situation where they can have a close, warm, moist atmosphere; a cold frame, kept close in summer, will answer admirably.

Culture.—Hardy Ferns are found in various situations, and, consequently, require various modes of treatment. Some grow on rocks in exposed situations; others in boggy, moist ground; some grow on hedge-banks and shady woods, whilst others, again, grow near waterfalls, where the spray keeps them constantly moist. To succeed in cultivating all these in one place, an approximation must be made to the circumstances in which they are found wild. A low, moist soil, at the foot of a bank of rock-work, will suit those found in a similar situation; the lower part of rock will suit those found on hedge-banks. Those found in shady woods may be planted on the north side of the rock-work, near to the ground; whilst those that grow wild on exposed rocks, or old walls, may be placed near the top of the rock-work in chinks between the stones. The most difficult to manage are those found within the reach of the spray of a waterfall. The only way to succeed tolerably with these is to place them so as they can be covered with a hand-glass in the shady side of the rock, and to keep them moist by sprinkling them every day through the rose of a watering-pot, protecting them in winter by a covering of matting thrown over the hand-glass in frosty weather.

FERRARIA. (Named after *Ferrari*, an Italian botanist. Nat. ord., *Irids* [*Iridaceæ*]. Linn., 16-*Monadelphia* 1-*Triandria*. Allied to *Pardanthus*.)

Very dwarf bulbs, from the Cape of Good Hope. Seeds sown when ripe, or kept dry until the following spring; offsets, which are plentifully produced; sandy loam and a little peat; bulbs to be kept dry after the leaves have withered; fresh potted when they begin to move, and then supplied with moisture. If planted on a warm border, placed at least six inches deep, and the soil and young shoots protected from frost, they may be grown in the open ground.

F. angustifolia (narrow-leaved). $\frac{1}{2}$. Brown. June. 1825.

— *antherosa* (large-anthered). $\frac{1}{2}$. Green, brown. June. 1800.

— *atra* (darkened). $\frac{1}{2}$. Dark purple. June.

F. dinarica (straggling). $\frac{1}{2}$. Brown. June. 1825.

— *elongata* (elongated). Dark purple. July. Monte Video. 1828.

— *obtusifolia* (blunt-leaved). $\frac{1}{2}$. Brown. June. 1825.

— *uncinata* (hooked). $\frac{1}{2}$. Brown. June. 1825.

— *undulata* (wavy-leaved). $\frac{1}{2}$. Green, brown. April. 1775.

FE'ULA. Giant Fennel. (Pliny's name for this plant. Nat. ord., *Umbellifers* [*Apiaceæ*]. Linn., 5-*Pentandria* 2-*Digynia*. Allied to *Heracleum*.)

The Giant Fennels, like the Cow Parsnips, are peculiarly well fitted to form striking contrasts near water, on banks, or by the recesses of rock-work in gardens, besides their interest as furnishing assafetida from the milky juice of *F. Persica*, &c. Hardy herbaceous perennials, with yellow flowers, except where otherwise specified. Seed in spring; common garden-soil.

F. ammoniaca (ammoniac). 6. White. June. Persia. 1831.

— *assafetida* (assafetida). 7. July. Persia.

— *campestris* (field). 3. June. Tauria. 1829.

— *capillaris* (hair-like). 4. June. Spain. 1820.

— *Caspica* (Caspian). 3. July. Caucasus. 1819.

— *communis* (common). 13. July. South Europe. 1597.

— *Ferulago* (*Ferulago*). 6. July. South Europe.

— *glauca* (milky-green). 8. July. Italy. 1596.

— *longifolia* (long-leaved). 4. July. Siberia. 1820.

— *meoides* (meum-like). 3. July. Levant. 1810.

— *nuda* (naked). 1. July. Siberia. 1821.

— *nudicaulis* (naked-stemmed). January. Sicily. 1825.

— *obtusifolia* (blunt-leaved). 1. Green. July. Greece. 1819.

— *orientalis* (eastern). 3. July. Levant. 1759.

— *paucijuga* (few-paired-leaved). $1\frac{1}{2}$. June. Persia. 1830.

— *Persica* (Persian). 6. August. Persia. 1782.

— *pubescens* (downy). 1. July. Siberia. 1820.

— *Sibirica* (Siberian). 4. July. Siberia. 1816.

— *Songarica* (Songarican). August. Siberia. 1825.

— *stricta* (erect). 2. July. Cape of Good Hope. 1818.

— *sybotica* (wood). 3. June. Podolia. 1829.

— *thyrsiflora* (thyrs-flowered). $1\frac{1}{2}$. June. Candia. 1823.

— *Tingitana* (Tangier). 8. July. Barbary. 1680.

— *villosa* (shaggy). 1. White. July. N. Amer. 1824.

FESTOON. An arch curving downwards, and the most graceful form for training climbers, either out of doors or in the conservatory.

FESTUCA. Fescue Grass. A genus of grasses containing some of the best of our pasture-grasses, such as Sheep's Fescue (*F. ovina*), and Hardish Fescue (*F. duriuscula*).

FEVERFEW. *Pyrethrum*.

FEVERWORT. *Trioesteum*.

FICA'RIA. Pilewort. (From *ficus*, a fig; in reference to the fig-shaped little tubers of the root. Nat. ord., *Crowfoots* [*Ranunculaceæ*]. Linn., 13-*Polyandria* 6-*Polygynia*. Allied to *Ranunculus*.)

One of the prettiest of our native early spring flowers. Hardy tubers. Division of the tuberous roots at any time, but best when the plant is pushing afresh. The garden varieties, as well as the common one, do best under the shade of trees.

F. verna (spring). $\frac{1}{2}$. Yellow. May. Britain.
— *pa'llida* (pale-flowered). $\frac{1}{2}$. Pale yellow. May.

— *plena* (double-flowered). $\frac{1}{2}$. Yellow. May. Britain.

Ficus. Fig-tree. (The fig-tree has nearly the same name in all the European languages, and is supposed to be derived from the Hebrew name *fag*. Nat. ord., *Morads* [*Moraceæ*]. Linn., 23. *Polygamia 2-Diœcia*.)

Besides the cultivated figs, there are a vast number of other species belonging to *Ficus*, all natives of the tropics, where they arrest the attention of the traveller either by their grateful shade, their enormous growth, or by their manner of sending down roots from their branches to support and extend their distorted arms, as in the *Banyan-tree*. By layers and cuttings; by the latter mode in the case of greenhouse and stove species. In either case, dry the cut ends before inserting them in sandy soil, but not removing more of the leaves than those at the joint cut through; in each case, place a hand-light over them. For the stove species there should be the addition of a hotbed; peat and loam will suit them well, the latter should preponderate when compactness of growth is desirable. *F. elastica* is the India-rubber plant. *F. Ca'rica*, the cultivated fig, is the only one hardy enough to bear our climate. Most of the stove species will do in a warm greenhouse. See FIG.

GREENHOUSE EVERGREENS.

F. Capensis (Cape). 4. Cape of Good Hope. 1816.

— *Ca'rica* (Carian. *Common Fig*). 15. June. South Europe. 1548. Deciduous.

— *cordata* (heart-leaved). 6. Cape of Good Hope. 1802.

— *macrophy'lla* (large-leaved). 14. N. Holland.

— *pu'mila* (dwarf). $\frac{1}{2}$. China. 1759. Trailer.

— *stipula'ta* (stipulate). $\frac{1}{2}$. China. 1771. Creeper.

STOVE EVERGREENS.

F. arbutifo'lia (arbutus-leaved). March. 1825.

— *auranti'aca* (orange-like). 10. 1824.

— *Benjami'na* (Benjamin-tree). 10. E. Ind. 1757.

— *coria'cea* (leathery-leaved). 10. E. Ind. 1772.

— *corona'ta* (crowned). 6. June. 1800.

— *crassine'rvia* (thick-nerved). 10. S. Amer. 1823.

— *dumo'sa* (bushy). 6. 1825.

— *elastica* (elastic-gum). 20. E. Ind. 1815.

— *ell'ptica* (oval). 20. S. Amer. 1824.

— *Hookeri* (Hooker's). 6. W. Ind. 1816.

— *infecto'ria* (staining). 15. W. Ind. 1763.

— *lavi'ga'ta* (polished). 6. W. Ind. 1823.

— *leuco'toma* (white-cleft). 20. E. Ind. 1763.

— *Lichtenstei'nii* (Lichtenstein's). 3. Cape of Good Hope. 1824.

— *Loga'nii* (Logan's). 20. Caraccas. 1824.

— *longifo'lia* (long-leaved). 20. E. Ind. 1825.

— *myrtifo'lia* (myrtle-leaved). 4. 1824.

— *nymphaifo'lia* (water-lily-leaved). 10. E. Ind. 1759.

— *obtusifo'lia* (blunt-leaved). 20. Mexica. 1823.

— *oppositifo'lia* (opposite-leaved). 4. E. Ind. 1802.

— *pertu'sa* (pierced-leaved). 8. S. Amer. 1780.

— *popu'inea* (poplar-leaved). 12. S. Amer. 1812.

F. racemo'sa (racemed). 4. E. Ind. 1759.

— *religio'sa* (religious. *Banyan-tree*). 25. E. Ind. 1731.

— *re'pens* (creeping-stemmed). $\frac{1}{2}$. E. Ind. 1805. Creeper.

— *rubine'rvia* (red-nerved). 10. Brazil. 1824.

— *sagitu'ta* (arrow-head-leaved). $\frac{1}{2}$. E. Ind. 1810. Creeper.

— *tincto'ria* (dyeing). 14. May. Society Isles. 1793.

— *urophy'lla* (tail-leaved). 2. June. India. 1829.

— *veno'sa* (veiny-leaved). 10. E. Ind. 1763.

— *visco'fita* (clammy-leaved). 10. 1820.

FIDDLE-WOOD. *Cithare'xylum*.

FIE'DLIA. (Named after *Baron Field*, once chief judge of New South Wales. Nat. ord., *Gesnerworts* [*Gesneraceæ*]. Linn., 14. *Didynamia 1-Gymnospermia*. Allied to *Cyrtandra*.)

Greenhouse climber; cuttings of points of shoots getting a little firm, or, better still, firm side-shoots, about two inches in length, in sandy soil, under a bell-glass, kept shaded, and after a fortnight placed in a mild bottom-heat; peat and loam, with a little sand, and pieces of charcoal. Winter temp., 40° to 48°.

F. austr'alis (southern). 1. White. July. N. Holland. 1826.

FIG. *Ficus Ca'rica*.

Varieties.—For forcing, we recommend the *Brown Turkey*, or *Lee's Perpetual*, *Pregussata*, and *White Marseilles*. The *Nerii* is also well spoken of. To plant out-doors, the *Brunswick*, *Brown Turkey*, *Brown Ischia*, *Black Ischia*, and *Pregussata*.

Propagation.—The fig roots so firmly by cuttings, that few resort to any other mode. They propagate, however, as freely by layers. Some persons, also, have raised them from seed, but it does not appear that they are valuable, though new kinds have been originated by such means. Cuttings of ripe wood, about three or four inches long, planted in pots in January or February, and plunged in any ordinary bottom-heat, will make very nice plants during the same summer. Those for forcing in pots or boxes must be potted off when rooted, and again plunged in bottom warmth, and the highest course of culture pursued, shifting them when necessary. Those who plant on the open walls should do so in the middle of March; and if the plants are from pots, the roots must be uncoiled and spread nicely out. Many persons who have established trees merely take suckers away from them; such only need fastening in the soil, and, it may be, a shading when they begin to grow.

Soil.—The fig will thrive in almost any ordinary garden-soil, but it is said to pre-

fer a chalky loam. When planted against walls out of doors, care must be taken not to make the soil rich, for invincible grossness would be the consequence. A plain "maiden" soil is quite good enough for general purposes.

Culture in Growing Period.—Out-door culture consists in an early disbudding of all superfluous shoots; this is performed when the young shoots are about three inches long, reserving all those which are short-jointed and compact-looking. Care must be taken to reserve shoots for blank places. This disbudding is generally performed at twice or thrice during the season; for waste and watery-looking spray will continue to spring up until August, especially in moist summers, and when the plants are gross. Such disbudding should be carried out until almost every leaf of the future year's bearing-wood obtains a free exposure to sunshine, say by the middle of August. About the end of this month it is accounted good practice to pinch the ends of all growing shoots, or rather to squeeze them with the thumb and finger. Nothing more is needed as summer culture, except a timely training of all reserved shoots, in order to obtain all the sunlight possible.

Culture in Rest Period.—This merely consists in protection from frost, and in pruning. Towards the beginning of December, some protection ought to be given, as mats, straw, fern fronds, or spruce boughs. Before closing them, or, indeed, at the end of October, every fig which has become as large as a horse-bean, should be pulled away, for such rob the trees, and are sure to perish. The trees must be uncovered again in the end of February, if matted, otherwise such materials as fern or straw may remain on a little longer; the spruce, until pruning time. The latter operation should not be performed until the young buds are beginning to swell, when wood of a proper character may be distinguished readily from that which is useless. All the latter must be cut away, unless required for blank spaces; but if summer disbudding has been properly performed, there will be little for the pruner to do. After this, they must be duly trained.

Forcing.—Some build houses for the fig, but most prefer growing them in tubs or large pots. The general principles of forcing them so closely resemble those for the vine, that it will be needless to go

into details. As to general temperature, although they will bear much heat, yet most cultivators agree that one intermediate between the peach-house and the forcing vinery is the most congenial. It requires, however, a little more excitement to bring the fig into leaf than the peach. Under good house culture it will produce two satisfactory crops in one year. A first crop may be obtained as early as May, and after a couple of months or so, the second will commence ripening; the latter being those on the wood of the current season. The first crop, or the embryo fruit of the previous year, is very apt to fall prematurely, and much care is necessary. Regular waterings the moment they are dry, and an avoidance of atmospheric extremes, are the best preventives. Most good cultivators make a point of pinching the ends of the young shoots when about six or eight eyes or buds in length; this soon causes the fruit to form in the axils of the leaves. Frequent syringings should be practised in the growing season; and when at rest they should never be subjected to a lower temperature than 40°. Under all circumstances, the fig delights in a soil somewhat moist: a neglect of watering when necessary, even for a day, may cause them to cast their fruit.

Fruit.—Its use is almost entirely confined to the ripe state, as dessert; as for keeping, if such is attempted, it must be on the retarding system, by partial shade, and a lowering of temperature just before ripening.

Insects.—The *Red Spider* and the *Brown Scale* alone cause any alarm to Fig cultivators. The spider must be combated by the syringe, by an occasional dusting of sulphur, and by dressing the shoots all over, before commencing forcing, with soap water and sulphur; three ounces of soft soap to a gallon of warm water, well beat up, adding four handfuls of sulphur, will make a mixture, which, brushed into every crevice, will extirpate both scale and spider. Sulphur, however, should be used on the pipes during the growing season.

FIG MARIGOLD. *Mesembryanthemum*.

FIGURE-OF-8 MOTH. *Episema*.

FILBERT. See CO'RYLUS.

FIMBRIA'RIA. (From *fimbria*, fringe; a second name for *Schwa'nnia*, a fine shrub with fringed leaves; hence the synonyme. Nat. ord., *Malpighiads* [Mal-

pighiaceæ]. Linn., 10-*Decandria* 4-*Pen-tagynia*. Allied to *Camarea*.)

Stove evergreen climber. Cuttings of ripe shoots in sand, under a bell-glass, in spring or summer, and plunged in a sweet bottom-heat; sandy loam, turfy peat, a little silver sand, and a few pieces of charcoal. Winter temp., 50° to 55°; summer, 60° to 85°.

F. elegans (elegant). Yellow. S. Amer. 1842.

FINGERS-AND-TOES. See *AMBURY*.

FINOCHIO, or AZOREAN FENNEL (*Ane-thum Azo'ricum*) cannot be cultivated successfully in this country.

FIR. *Pi'nus*.

FIRE. See *FURNACE*.

FISH. See *ANIMAL MATTERS*.

FISCHE'RIA. (Named after *Dr. Fischer*, of St. Petersburg. Nat. ord., *Asclepiads* [*Asclepiadaceæ*]. Linn., 5-*Pentandria* 2-*Digynia*. Allied to *Gonolobus*.)

Stove evergreen climber. Cuttings of shoots, young or old, in light, open soil, and in heat; peat and loam, with broken bricks and charcoal mixed with the compost, in addition to good drainage. Summer temp., 60° to 80°; winter, 48° to 55°.

F. scandens (climbing). Green, yellow. May. S. Amer. 1826.

FITZROYA. (So called after *Capt. R. Fitzroy*, R.N., commander of a surveying expedition. Nat., ord., *Conifers* [*Coniferae*]. Linn., 21-*Monæcia* 9-*Polyandria*.)

Evergreen hardy tree. Cultivated like the *Cedrus deodora*.

F. Patagónica (Patagonian). 80. Yellow, green. Patagonia.

FLACOURTIA. (Named after *E. Flacourt*, a French botanist. Nat. ord., *Bixads* [*Flacourtiaceæ*]. Linn., 22-*Diacia* 12-*Polyandria*.)

Stove evergreens with white flowers, the fruit of which is wholesome. Cuttings of half-ripened shoots in April, in sand, and in heat, under a bell-glass; peat and loam. Summer temp., 60° to 85°; winter, 50° to 55°.

F. cataphracta (all-armed). 4. E. Ind. 1804.

— *flavescens* (yellowish). 15. Guinea. 1780.

— *inermis* (unarmed). 20. E. Ind. 1819.

— *Ramontchii* (Ramontchii). 12. July. Madagascar. 1775.

— *rhamnoides* (rhamnus-like). 4. Cape of Good Hope. 1816.

— *rotundifolia* (round-leaved). 12. E. Ind. 1820.

— *sapida* (well-tasted. *Esculent*). 10. E. Ind. 1800.

— *sepia'ria* (hedge). 6. E. Ind. 1816.

FLAGELLARIA. (From *flagello*, to whip or scour; in reference to the long, flexible shoots. Nat. ord., *Spiderworts* [*Commelinaceæ*]. Linn., 6-*Hexandria* 3-*Triogynia*.)

Stove evergreen climber. Cuttings in sand, under a bell-glass, but chiefly by suckers; peat and loam; more curious than beautiful; leaves very astringent.

F. Indica (Indian). 7. White. June. India. 1782.

FLAKE is the term by which a carnation is distinguished that has two colours

only, and these extending through the length of the petals.

FLAME-LILY. *Pyrolirion*.

FLAX. *Li'num*.

FLAX-LILY. *Pho'rnum*.

FLAX-STAR. *Lysim'chia li'num stella'tum*.

FLINDER'SIA. (Named in honour of *Capt. M. Flinders*, R.N., who explored the coast of New Holland in the beginning of this century. Nat. ord., *Cedrelads* [*Cedrelaceæ*]. Linn., 10-*Decandria* 1-*Monogynia*. Allied to *Chloroxylon*.)

A greenhouse evergreen tree. Cuttings of the ripened shoots in sand, under a bell-glass, in spring; loam and peat. Winter temp., 38° to 45°.

F. australis (southern). 60. White. N. Holland. 1823.

FLORESTINA. (Derivation not explained. Nat. ord., *Composites* [*Astera-cæe*]. Linn., 19-*Syngenesia* 1-*Æqualis*. Allied to *Bahia*.)

Seeds of *callosa* in the open ground, in April; seeds of *pedata* in a hotbed, in March, and transplanted in May to a sheltered situation, or grown in a cool greenhouse.

F. callosa (hardened). 1½. White. June. Arkansas. 1824.

— *pedata* (double-lobed-leaved). White. July. Mexico. 1803.

FLORETS. The small stalkless flowers united on a common undivided receptacle, and enclosed in one common calyx to form a compound flower.

FLORIST. A dealer in flowers, flowering shrubs, and their seeds.

FLORISTS' FLOWERS are those which, by their beauty or fragrance, power to produce permanent varieties, and facility of cultivation, are so largely in demand as to render them especially worthy of cultivation as an article of commerce.

Mr. Glenny has justly enumerated the necessary characteristics of a florists' flower to be—1st. The power to be perpetuated and increased by slips and other modes independent of its seed. 2ndly. The power to produce new varieties from seed, capable, like their parent, of being perpetuated; and, thirdly, it must possess sufficient interest and variety to be grown in collections.

At present, the chief florists' flowers are the *Amaryllis*, *Anagallis*, *Anemone*, *Auricula*, *Calceolaria*, *Carnation*, *Chrysanthemum*, *Cineraria*, *Crocus*, *Dahlia*, *Fritillary*, *Fuchsia*, *Gladiolus*, *Hyacinth*, *Hydrangea*, *Ixia*, *Iris*, *Lily*, *Lobelia*, *Narcissus*, *Pansy*, *Peony*, *Pelargonium*, *Petunia*, *Phlox*, *Pink*, *Polyanthus*, *Ranunculus*, *Rhododendron*, *Rose*, *Tulip*, *Tuberose*, *Verbena*.

FLOWER. See BLOOM.

FLOWER FENCE. *Poincia'na*.

FLOWERING ASH. *O'rmus*.

FLOWER OF JOVE. *Ly'chnis flo's Jo'vis*.

FLOWER-GARDEN is that portion of the ground in the vicinity of the residence disposed in parterres and borders, tenanted by flowers and flowering shrubs, and among walks and lawns, so that the occupiers of the house may have ready access to what is so beautiful in form, colour, and fragrance. See LANDSCAPE GARDENING, PLANTATION, &c.

FLOWER-POTS are of various sizes and names:—

Thimbles and thumbs; any size under three inches diameter at the top.

	Width of top in inches.	Depth in inches.	Old Name.
Three-inch pot..	3	4	60s
Five-inch	5	5	48s
Six-inch	6	6	32s
Eight-inch	8	8	24s
Nine-inch	9	9	16s
Eleven-inch	11	10	12s
Twelve-inch	12	11	8s
Thirteen-inch ..	13	12	6s
Fifteen-inch	15	13	4s
Eighteen-inch ..	18	14	2s

In addition to the above, there is a description of flower-pots called *uprights*, which are used for growing bulbous plants, the roots of which do not spread laterally, but perpendicularly. They are deeper in proportion to their width than common flower-pots, and may be thus particularised:—

	Top width in inches.	Depth in inches.	
Upright 15-inch (Old upright 16s).....	15	16	Used for growing 7, or a large mass of Gladioli, and third-sized bulbs of Japan lilies; for ordinary-sized <i>Alströmarias</i> ; and for large tubers of <i>Tropæolum tricolorum</i> and its allies.
Upright 8-inch (Old upright 24s).....	8	10	For 5 Hyacinths, Narcissi, or strong early tulips, like Golden Standard and <i>Rex rubrum</i> .
Upright 6-inch (Old upright 32s).....	6	7	For 3 Hyacinths, or Narcissi, and for 1 strong Gladiolus, <i>Auricula</i> , &c.
Upright 5-inch (Old upright 48s).....	5	6	For single Hyacinths, or Narcissi; for 5 <i>Ixias</i> or <i>Crocuses</i> ; and for 4 dwarf early Tulips, such as the Van Houtte.

For sizes larger than 15-inch it is needless to have any pots but those of the usual proportions.

Thimbles are sometimes called "small nineties," and thumbs, "large nineties."

The form and material also vary. Mr. Beck makes them very successfully of slate; and the prejudice against glazed pots is now exploded.

It was formerly considered important to have the pots made of a material as porous as possible; but a more miserable delusion never was handed down untested from one generation to another. Stone-ware and china-ware are infinitely preferable, for they keep the roots more uniformly moist and warm. Common garden-pots, if not plunged, should be thickly painted. Large pots have been recommended to be employed, and there is no doubt that this is a system much abridging the gardener's labour; but as with due care small pots will produce magnificent specimen plants, we cannot recommend an adoption of large pots, insuring as they do such an immense sacrifice of room in the hot and greenhouses. Captain Thurtell, one of the most successful of growers of the *Pelargonium*, never employed pots larger than twenty-fours.

It is usual to have *saucers* in which to place flower-pots when in the house, and so far as preventing stains and the occurrence of dirt, they are deserving adoption; but as to their being used for applying water to plants, they are worse than useless, except to plants almost aquatic. The great difficulty in pot cultivation is to keep the drainage regular; and no more effective preventive of this could be devised than keeping a pot in a saucer containing water. No plan for most cultivated plants could be invented more contrary to nature; for we all know that she supplies moisture to the surface of the soil, and allows it to descend, thus supplying the *upper* roots first. For drawings of various flower pots see *The Cottage Gardener*, No. 64.

FLOWER STAGES are made for the exhibition of flowers at shows, in the greenhouse, and elsewhere. The following are some very judicious observations on the subject:—The first object in the construction of stages should be to have them so formed and situated as to afford facilities for grouping plants; the second should be to give plants more the appearance of growing in borders than upon

artificial structures; and the third to keep the pot out of sight. This is requisite for two reasons: first, because they are no ornament; and, secondly, that it is always desirable to protect the plant from being scorched by exposure to the sun. It is also desirable to adopt another mode of construction, for the purpose of giving plants that aspect which is most suited to their habits; and, therefore, instead of placing the stages from the front to the back of the house, as is generally the case, let them be placed in groups of stages, thus producing an effect similar to the borders in a well-arranged flower-garden. The spectators, in their progress from group to group, would be attracted by the separate display in each, instead of having their attention drawn away by a whole blaze of beauty at once.

Mr. Ainger, also, makes these good suggestions:—Stages are frequently formed of an equal or nearly equal series of ascents, in consequence of which the upper plants are by no means so well seen as the lower ones. The proper plan is to commence by small elevations, gradually increasing as the shelves recede from the eye. The lowest shelf to be eighteen inches from the floor, the first rise is six inches, the next nine, twelve, fifteen, eighteen, twenty-one, and so on. The upper shelves should also be broader than the lower, for larger pots. The advantage of this arrangement, as commanding a better view of the flowers, is obvious.

FLUES are pipes formed of brick or slate, for conducting heated air through stoves or other buildings where a high artificial temperature is desired. It is a mode of heating much less used than formerly, being superseded by the much more manageable and effectual modes of heating by hot water; and flues have the additional disadvantages, that they require frequent sweeping, and that they emit a sulphurous fume that is injurious to plants, and disagreeable to the frequenters of the structures so heated. This has been obviated by using Valencia slates in the place of bricks; yet flues under few circumstances can compare with either the pipe or tank system of hot-water heating. When flues are employed, they are constructed inside and near the walls of the building; each flue eight or nine inches wide in the clear, by two or three bricks on edge deep, ranged horizontally one over the other the whole

length of the back wall, in three or four returns communicating with each other, continued, also, along the end and front walls in one or two ranges, to be used occasionally; furnished with a regulator to slide open and shut as required, the whole proceeding from the first lowermost flue, which communicates immediately from the furnace or fire-place behind either the back wall at one end, or in the back part of the end walls; or if very long stoves, or more than forty feet length, two fire-places are requisite, one at each end; each having its set of flues ranging half-way; each set of flues terminating in an upright chimney at the end of the back outside. Flues are merely chimneys horizontal, instead of being entirely upright, terminating, however, generally in an upright tube or shaft, which discharges their contents into the open air. They are most effectual when they traverse the ends and the front of the house; as, if the back wall is a solid material, there can be less danger of cold there. Arrangements must be made for a good draught, by having the bottom of the furnace two feet below the level of the bottom of the flue. The flue should, after entering the house, rise a little to the extreme end. It should stand a little raised above the floor, and never be placed below it, unless when well supplied with air by cross drains. It should be constructed of the best brick and tiles, be plastered over if a strong heat is necessary, and merely whitewashed if a heat is only wanted occasionally. Evaporating basins should be secured, so that the atmosphere be supplied with moisture as well as heat. *See* STOVE.

FLUED WALL. *See* WALL.

FLY. *See* BLACK FLEA.

FLYWORT. *Mya'nthus*.

FETIDA. (From *fetidus*, fetid; referring to the unpleasant smell of the leaves and wood. Nat. ord., *Burroniads* [Barringtoniaceæ]. Linn., 12-*Icosandria* 3-*Polygynia*. Allied to *Gustavia*.)

Cuttings of ripe wood, with the leaves remaining, in sand, in spring, under a bell-glass, and in heat; fibry loam and turfy peat, with silver sand. Summer temp., 60° to 75°; winter, 48° to 55°.

F. Mauritia (Mauritius). 26. White. Mauritius. 1825.

FOGGING-OFF. The same as *damping-off*.

FOLLICLE, a seed-vessel of one entire

piece, and one-celled, bursting lengthwise, and having the seed on or near its edges, on a receptacle parallel with it. Examples are the seed-vessels of the Periwinkle and Peony.

FONTANE'SIA. (In honour of the French botanist, *Des Fontaines*. Nat. ord., *Oliveworts* [Oleaceæ]. Linn., 2-*Dian-dria* 1-*Monogynia*. Allied to Lilac.)

Grafted standard high on the Manna Ash (*Ornus*) it would make an interesting object on lawns. It resembles the common Privet, but with rough bark. Layers and cuttings under a hand-glass, in autumn, and by grafting on the Privet. When grown to a single stem it has a graceful appearance, owing to its slender, drooping branches.

F. phillyraoides (phillyrea-like). 12. Yellow. August. Syria. 1787.

FORCING is compelling culinary vegetables to be edible, flowers to bloom, and fruits to ripen at unnatural seasons, being the very contrary of the object for which our greenhouses and hothouses are constructed; viz., to secure a temperature in which their tenants will be in perfection at their natural seasons. Under the heads of **HOTBEDS**, and of each particular plant, will be found directions for forcing, and it will be sufficient here to coincide with Dr. Lindley in saying, that as forced flowers are always less beautiful and less fragrant, and forced vegetables and fruits less palatable and less nutritious than those perfected at their natural periods, it is desirable, at the very least, to devote as much effort and expense to obtain superior produce at accustomed times, as to the procuring it unseasonably. Rarity is good, but excellence is best.

FORE-RIGHT SHOOTS are the shoots which are emitted directly in front of branches trained against a wall, and, consequently, cannot be trained in without an acute bending, which is always in some degree injurious.

FORE-SHORTENING. A method of pruning back fruit-trees in summer, and of pruning forest-trees at any time, by which the lower branches are shortened, without removing them altogether.

FORGET-ME-NOT. *Myosotis palustris*.

FORK. This instrument is preferable to the spade, even for digging over open compartments, for the soil can be reversed with it as easily as with the spade; the labour is diminished, and the pulverisation of the soil is more effectual. (See **DIGGING**.) For stirring the soil in

plantations, shrubberies, and fruit-borders, a two-pronged fork is often employed; but that with three prongs is quite as unobjectionable, and a multiplicity of tools is an expensive folly. Dr. Yelloly's fork is certainly a good working implement. Entire length, three feet three and a half inches; handle's length, two feet two inches; its diameter, one and a half inch; width of the entire prongs, seven inches at the top; width at the points, six inches; prongs, thirteen and a half inches long, and at the top seven-eighths of an inch square, tapering to a point. The straps fixing the head to the handle are eleven inches long, two inches wide, and half an inch thick, feathering off; weight of fork, eight pounds.

Leaf-fork. Mr. Toward, of Bagshot Park, describes a very serviceable implement of this kind. He says:—One person with this implement will take up with greater facility more leaves than two persons could do with any other tool. It is simply a large four-tined fork, made of wood, shod with iron; the tines are eighteen inches long, and are morticed into a head about seventeen inches long, and one and a half inch by two and a quarter inches thick. The tines are one inch in width, and one and a half inch in depth at the head, gradually tapering to a point, with a curve or bend upwards. The wood of which they are formed ought to be hard and tough; either oak or ash will do, but the *Robinia pseudo-acacia* is preferable to either. The head should be made of ash, with a handle of the same, and should be two feet four inches long. Its recommendations are its size and lightness; the leaves, also, do not hang upon it as on a common fork, the large size of the tines tearing them asunder.

FORMICA. See **ANT**.

FORSYTHIA. (In honour of Mr. Forsyth, royal gardener at Kensington. Nat. ord., *Oliveworts* [Oleaceæ]. Linn., 2-*Dian-dria* 1-*Monogynia*. Allied to Fontanesia.)

Hardy deciduous shrubs. Cuttings or layers; common, sandy loam. *F. viridissima* requires a little protection.

F. suspensa (hanging-down). Yellow. Japan. — *viridissima* (greenest). 10. Yellow. March. North China. 1845.

FORSYTH'S PLAISTER for healing the wounds and restoring to vigour decayed trees, was as follows:—One bushel of

fresh *cowdung*; half a bushel of *lime-rubbish*, (that from ceilings of rooms is preferable,) or powdered chalk; half a bushel of *wood-ashes*; one-sixteenth of a bushel of *sand*; the last three to be sifted fine. The whole to be mixed and beaten together until they form a fine plaster. There is nothing in this compound sufficiently differing from others recommended by his contemporaries and predecessors to have entitled him to call it his invention.

FORTUNE'A. (Named in compliment to *Mr. Fortune*, botanical collector in China. Nat. ord., *Juglands* [*Juglandacæ*]. Linn., 21-*Monœcia* 9-*Polyandria*.)

A curious plant, with the aspect of a Sumach. By seeds, and probably by grafting on smaller species of the Walnut and Hickory. Likely to prove hardy.

F. Chine'nsis (Chinese). 30. Green. June. North China. 1844.

FOTHERGILLA. (Named after *Dr. Fothergill*. Nat. ord., *Witch-Hazels* [*Hamamelidacæ*]. Linn., 12-*Icosandria* 2-*Digynia*.)

Hardy little shrubs, from North America; their white, sweet-scented flowers appearing before the leaves. Seeds, which frequently ripen in this country, sown in spring, in a peat border, or in pans, and transplanted; layers in March and August; sandy, moist peat.

F. alnifolia (alder-leaved). 4. May. 1765.
— *acuta* (acute-leaved). 4. June. 1765.
— *major* (larger). 4. May. 1765.
— *obtus*a (blunt-leaved). 4. June. 1765.
— *serotina* (late-flowering). 4. August. 1765.

FOUNTAINS, or, as they are sometimes called, *Jets d'eau*, surprise by their novelty, and the surprise is proportioned to the height to which they throw the water; but these perpendicular columns of water have no pretence to beauty. The Emperor fountain at Chatsworth is the most surprising in the world, for it tosses its waters to a height of 267 feet, impelled by a fall from a reservoir 381 feet above the ajutage, or mouth of the pipe from which it rushes into the air. The supply of water, either naturally or artificially, is brought from a higher level than the discharging pipe; but the water will not rise so high as the level from whence it came, which is owing to the resistance of the air at the discharging point, its own gravity, and the friction of the sides of the pipe in which it is conveyed. Whatever be the form in which the water is discharged, if it is designed to throw it up in a perpendicular direction, the pipe must be so narrowed where

the water issues out as not to be above one-fourth the diameter of the conducting pipe.

FOURCRO'YA. (Named after *M. Fourcroy*, a celebrated chemist. Nat. ord., *Amaryllids* [*Amaryllidacæ*]. Linn., 6-*Hexandria* 1-*Monogynia*. Allied to *Littæa*.)

Amaryllids reach their maximum grandeur in *Fourcro'ya longæ'va*, whose flower-stem rises to 40 feet, whilst that of *F. gigante'a* does not exceed that of a moderate-sized Agave, and both would thrive in the open air with us in summer. There are only two species introduced. The following synonyms belong to *F. gigante'a*:—*Fæ'tida*, *tubero'sa*, *Cubê'nsis*, *ri'gida*, *Austra'lis*, *Madagascari'e'nsis*, and *canta'ta*. They are increased by imported seeds, or by suckers.

F. gigante'a (gigantic). 20. Green. August. S. Amer. 1690.

— *longæ'va* (long-lived). 40. White. May. Mexico. 1833.

— *tubiflo'ra* (tube-flowered). 1. Green, red. February. Mexico. 1852.

FOXBALE. *Aconitum vulpa'ria*

FOXLGLOVE. *Digit'a'lis*.

FRACTURES. If an immaterial branch is broken, it is best to remove it entirely; but it sometimes happens that a stem or branch which cannot be replaced is thus injured, in which case it is advisable to attempt a reduction of the fracture; and if it be only partial, and the stem or branch but small, the parts will again unite by being put back into their natural position, and well propped up. The cure may be expected not to succeed if the fracture is accompanied with contusion, or if the stem or branch is large; and even where it succeeds, the woody fibres do not contribute to the union; but the granular and herbaceous substance only which exudes from between the wood and liber, insinuating itself into all interstices, and finally becoming indurated in the wood. Splints extending at least a foot above and below the fracture should be bound very firmly all round, and a plaster of grafting-clay to exclude wet be placed over all, and every precaution adopted to prevent the surfaces of the wound being moved by the force of the wind.

FRAGA'RIA. The Strawberry. (From *fragrans*, perfumed; in reference to the flavour of the fruit. Nat. ord., *Roseworts* [*Rosacæ*]. Linn., 12-*Icosandria* 1-*Monogynia*.)

Hardy evergreens. Seeds, sown early in a slight hothed, and planted out early, will in many cases produce fruit in the autumn of the same season. Plants are most easily obtained by detaching the runners. Deep loam suits them. See **STRAW-BERRY**.

- F. Bonariensis* (Buenos Ayres). 2. Apetal. June. Buenos Ayres.
 — *Breslingii* (Bresling). 1. White. May. France.
 — *calycina* (large-calyxed). 1. White. April. France.
 — *Canadensis* (Canadian). 1½. White. May. N. Amer.
 — *Chilensis* (Chili). 2. White. May. S. Amer. 1727.
 — *collina* (hill. *Green Pine*). 1. White. June. Germany. 1768.
 — *elatior* (taller. *Hautbois*). 1½. White. May. Britain.
 — *grandiflora* (*Pine*. Great-flowered). 1. White. May. Surinam. 1759.
 — *Indica* (yellow. Indian). 1. Yellow. July. India. 1805.
 — *Majaufea* (*Majaufe de Champ*). 1. White. May. France.
 — *monophylla* (one-leaved). 1. White. May. 1773.
 — *platanoides* (plane-like). 1. Red. May. N. Amer.
 — *vesca* (edible. *Common wild*). 1. White. May. Britain.
 — *Virginiana* (*Scarlet*. Virginia). 1. White. April. N. Amer. 1629.

FRAMES are structures employed either in forcing, or in protecting plants, and are of various sizes.

According to the good practical rules of Abercrombie, the *one-light frame* may be about four feet and a half in width from back to front, and three feet six inches the other way; fifteen or eighteen inches high in the back, and nine in front, with a glass sash or light, made to fit the top completely, to slide up and down, and move away occasionally.

The *two-light frame* may be seven feet long, four and a half wide, and fifteen or eighteen inches high in the back, with bars reaching from it at top to the front, serving both to strengthen the frame and help to support the lights; the two lights to be each three feet six inches wide, made to fit the top of the frame exactly.

The *three-light frame* should be ten feet six inches long, four and a half wide, and from eighteen inches to two feet high in the back, and from nine to twelve or fifteen inches in front—observing that those designed principally for the culture of melons may be rather deeper than for cucumbers, because they generally require a greater depth of mould or earth on the beds; though frames, eighteen or twenty inches in the back, and from nine to twelve in front, are often made to serve occasionally both for cucumbers and melons. Each frame should have two cross bars, ranging from the top of the back to that of the front, at three feet six inches distance, to strengthen the frame, and support the lights; and the three lights

should be each three feet six inches wide; the whole together being made to fit the top of the frame exactly, every way in length and width.

Sometimes the above sort of frames are made of larger dimensions than before specified; but in respect to this it should be observed, that if larger they are very inconvenient to move to different parts where they may be occasionally wanted, and require more heat to warm the internal air; and in respect to depth particularly, if they are but just deep enough to contain a due depth of mould, and for the plants to have moderate room to grow, they will be better than if deeper, as the plants will be then always near the glasses, which is an essential consideration in early work, and the internal air will be more effectually supported in a due temperature of warmth; for the deeper the frame, the less in proportion will be the heat of the internal air, and the plants being far from the glasses will be some disadvantage in their early growth. Besides, a too deep frame, both in early and late work, is apt to draw the plants up weakly; for they always naturally aspire towards the glasses, and the more space there is, the more they will run up; for which reason the London kitchen-gardeners have many of their frames not more than fourteen or fifteen inches high behind, and seven in front, especially those which are intended to winter the more tender young plants, such as cauliflower and lettuce, and for raising early small salad, herbs, radishes, &c.

The wood-work of the back, ends, and front should be of inch or inch and a quarter deal, as before observed, which should be all neatly planed even and smooth on both sides; and the joints, in framing them together, should be so close that no wet or air can enter. The cross-bars or bearers at top, for the support of the glasses, should be about three inches broad and one thick, and neatly dovetailed in at back and front even with both edges, that the lights may shut down close, each having a groove or channel along the middle to conduct off all wet falling between the lights. At the end of each frame, at top, should be a thin slip of board, four inches broad, up to the outside of the lights, being necessary to guard against cutting winds rushing in at that part immediately upon the plants, when the lights are occasionally

tilted behind for the necessary admission of fresh air, &c.

With respect to the lights, the wood-work of the frame should be one inch and a half thick and two and a half broad; and the bars for the immediate support of the glass-work should be about an inch broad, and not more than an inch and a half thick; for, if too broad and thick, they would intercept the rays of the sun, so should be only just sufficient to support the lights, and be ranged from the back part to the front, nine or twelve inches asunder.

All the wood-work, both of the frames and lights, should be painted, to preserve them from decay. A lead colour will be the most eligible; and if done three times over, outside and in, will preserve the wood exceedingly from the injuries of weather, and from the moisture of the earth and dung.

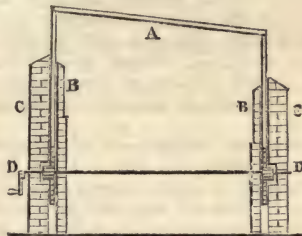
Mr. Knight has suggested an important improvement in the form of frames. He observes, that the general practice is to make the surface of the bed perfectly horizontal, and to give an inclination to the glass. That side of the frame which is to stand towards the north is made nearly as deep again as its opposite; so that if the mould is placed of an equal depth (as it ought to be) over the whole bed, the plants are too far from the glass at one end of the frame, and too near at the other. To remove this inconvenience, he points out the mode of forming the bed on an inclined plane; and the frame formed with sides of equal depth, and so put together as to continue perpendicular when on the bed, as represented in the accompanying sketch.



There are several minor points in the construction of frames that deserve attention. The strips of lead or wood that sustain the panes of glass should run across the frame, and not lengthwise; they then neither obstruct so much the

entrance of light, nor the passing off of rain. The inside of the frame should be painted white, since plants generally suffer in them for want of light: if the accumulation of heat was required, the colour should be black.

Raising the Frames.—It is a well-known difficulty that the gardener has in raising the frames so as to keep the foliage of the plants within them at a determined and constant distance from the glass. To remedy this, Mr. Nairn, gardener to J. Cresswell, Esq., of Battersea Priory, has introduced the ingenious contrivance represented in the accompanying sketch and references:—A, a moveable frame; B B, inside lining of the pit; C C, outer wall. Between these the sides of the frame pass, and are lowered or elevated by racks and spindles, D D.



A more simple plan might perhaps be adopted, by having frames of the same length and breadth as the original, but only from an inch to three inches, or upwards, deep. These, as necessary, might be put on the top, and would be kept close by the pressure of the lights; bolts and nuts might also be easily applied, and the interstices rendered still more impervious to air by being faced with list.

Glass and Glazing.—See STOVE.

Shelter for the Glass.—In proportion to the number of lights, matting for shading and sheltering must be at hand. The usual mode of covering at night is by laying on mats, and over these litter, in thickness according to the severity of the season. Some gardeners lay hay immediately in contact with the glass, and over this the mats. Every person conversant with these modes of shelter is aware of their inconvenience. In rainy weather they soon become wet, and rapidly chill the beds; added to which, the trouble caused in placing and removing them, and the danger to the

glass from the stones laid on as a resistance to the wind, are by no means inconsiderable.

Mr. Seton, to obviate these inconveniences, employs a particular covering, which he constructs of four laths, two of such a length as to exceed a little that of the frame, and the others in a similar manner that of its breadth. These are bound together at right angles, so as to form a parallelogram of the form and size of the frame; and pieces are bound across this at a foot apart from each other. Over this a mat is spread, and over the mat a layer of straw is fastened, laid on level like thatch, from three to six inches thick, as may appear necessary. If the breadth of the frame is, or exceeds, four feet, it is best to have the covering in two parts, otherwise it becomes weak and unwieldy. These pannels, as they may be called, Mr. Seton also employs in preserving tender plants through the winter. A pit of frames, earthed up all round, and covered with one of them, or two or three if needful, is completely impervious to frost.

Substitutes for Glass.—Oiled paper was formerly employed; but this has been superseded by linen dressed with Whitney's or Tanner's compositions; or the gardener may employ the following preparation:—Old pale linseed-oil, three pints; sugar of lead (acetate of lead), one ounce; white resin, four ounces. Grind the acetate with a little of the oil, then add the rest and the resin. Incorporate thoroughly in a large iron pot over a gentle fire; and, with a large brush, apply hot to a fine calico stretched loosely previously, by means of tacks, upon the frame. On the following day it is fit for use, and may be either done over a second time, or tacked on tightly to remain.—*Gardener's Chronicle.*

The quantity made according to this recipe will be sufficient for about 100 square feet of calico.

FRANCISCE'A. We have referred the species to *Brunfelsia*.

FRANCO'A. (Named after *F. Franco*, a Spaniard. Nat. ord., *Francoads* [Francaceæ]. Linn., 8-*Octandria* 4-*Tetragynia*.)

Hardy herbaceous perennials, natives of Chili, and impatient of wet under cultivation. A few plants should be kept in cold frames, to replace such as die off during severe winters. Seeds in a slight hotbed, in spring; plants hardened off, and then transplanted; dry, sandy loam suits them best. In severe weather, they are worth

the labour of sticking a few evergreen boughs round them.

F. appendiculata (appendaged). 2. Purple. July. 1830.

—*ramosa* (branched). 2. White. July. 1831.

—*sonchifolia* (sowthistle-leaved). 2. Purple. July. 1830.

FRANKE'NIA. Sea Heath. (Named after *Frankenius*, a Swedish botanist. Nat. ord., *Frankeniads* [Frankeniaceæ]. Linn., 6-*Hexandria* 1-*Monogynia*.)

Small plants, found chiefly near the sea, more curious than pretty, though useful for rock-works, or for a collection of alpine. Seeds, cuttings, and dividing the roots; sandy loam, and a little peat.

HALF-HARDY EVERGREEN TRAILERS.

F. ericifolia (heath-leaved). 4. Red. July. Canaries. 1816.

—*nodiflora* (knot-flowered). 4. Flesh. June. Cape of Good Hope. 1818.

—*pauciflora* (few-flowered). 1. Pink. July. N. Holland. 1824.

HARDY EVERGREEN TRAILERS.

F. corymbosa (corymbose). 4. Red. July. Barbary. 1819.

—*hirsuta* (hairy). 4. Light blue. July. Siberia. 1789.

—*intermedia* (intermediate). 4. White. July. South Europe. 1817.

—*laevis* (smooth). 4. Flesh. July. England.

—*molli* (soft). 4. Red. July. Caucasus. 1824.

—*Nothria* (Nothria). 4. Flesh. July. Cape of Good Hope. 1816.

—*pulverulenta* (powdery). 4. Red. July. England. Annual.

FRANKINCENSE. *Pinus laevis*.

FRA'SERA. (Named after *John Fraser*, botanical collector in North America. Nat. ord., *Gentianworts* [Gentianaceæ]. Linn., *Tetrandria* 1-*Monogynia*. Allied to *Chironia*.)

Hardy biennial marsh-plant. Seeds in spring, and transplanted; also by division of the roots; sandy peat, with a little turfy loam.

F. Carolineensis (Carolina). 4. Green, yellow. July. Carolina. 1795.

FRAXINE'LLA. *Dictamnus*.

FRA'XINUS. The Ash. (*Fraxinus* is the Latin for an ash-tree. Nat. ord., *Olive-worts* [Oleaceæ]. Linn., 23-*Polygamia* 2-*Diœcia*.)

Hardy deciduous trees, with green flowers. Seeds ripe in October, then to be collected, and stored in thin layers in the ground, mixed with sandy soil, and turned once or twice during the winter; the seeds sifted from the soil, and sown in March or April. Most of the species may also be propagated by seeds, and the most distinct of them; as also the varieties by grafting. Dry, deep loam makes them produce the best timber. The *Weeping*, the *Silber*, and *Golden-barked* varieties of *F. excelsior* are interesting.

F. acuminata (pointed. Green). 40. May. N. Amer. 1723.

—*alba* (white). 30. Green. May. N. Amer. 1823.

—*amarissima* (bitterest). 20. May.

F. americana (American-white). 20. May. N. Amer. 1723.
 — *latifolia* (broad-leaved). 20. May.
 — *angustifolia* (narrow-leaved). May. Spain. 1825.
 — *appendica* (appendaged). 20. May.
 — *appendiculata* (appendiculate). 20. May.
 — *argentea* (silvery). 15. June. Corsica. 1825.
 — *atro-virens* (dark green). 4. May. Britain.
 — *auorea* (golden). April.
 — *Caroliniana* (Carolina). 30. June. N. Amer. 1783.
 — *cinearea* (grey). 30. May. N. Amer. 1824.
 — *curvidens* (curve-toothed). May. Carolina. 1811.
 — *elliptica* (oval). 30. May. N. Amer. 1825.
 — *epiptera* (wing-upon-wing). 30. May. N. Amer. 1823.
 — *excelsior* (taller). *Common Ash*. 80. May. Britain.
 — *argentea* (silver-barked). 20. May. Britain.
 — *auorea* (golden-barked). 20. May. Britain.
 — *auorea pendula* (yellow-pendulous). May. Britain.
 — *erosa* (gnawed). 20. May. Britain.
 — *fungosa* (fungous). 26. May. Britain.
 — *horizontalis* (horizontal). 20. May. Britain.
 — *jaspidea* (jasper-like. *Yellow-barked*). 30. May.
 — *Kincairnia* (Kincairney). 40. May. Kincairney.
 — *lutea* (yellow-edged). 20. May. Britain.
 — *na'na* (dwarf). 10. May. Britain.
 — *pendula* (pendulous). 20. May.
 — *striata* (streaked). 20. May. Britain.
 — *verrucosa* (warted-barked). 60. May. England.
 — *verrucosa pendula* (pendulous-warted). May. England.
 — *verticillaris* (whorled). 20. May. Britain.
 — *expansa* (expanded). 30. May. N. Amer. 1824.
 — *fusca* (dark brown). 30. May. N. Amer. 1823.
 — *heterophylla* (various-leaved). 30. May. England.
 — *variegata* (variegated-leaved). 12. May. Ireland. 1836.
 — *juglandifolia* (walnut-leaved). 40. May. N. Amer. 1783.
 — *subintegra* (nearly-entire). 40. May.
 — *luciniata* (jagged-leaved). May. N. Amer.
 — *lancea* (lance-leaved). 30. May. N. Amer. 1820.
 — *lentiscifolia* (lentiscus-leaved). 6. May. Aleppo. 1710.
 — *pendula* (pendulous). 20. June. Germany. 1833.
 — *longifolia* (long-leaved). 30. May. N. Amer. 1824.
 — *lucida* (shining). 20. May.
 — *macrophylla* (large-leaved). 40. May. 1823.
 — *Mexicana* (Mexican). 30. Green. May. Mexico. 1825.
 — *mixta* (mixed). 30. May. N. Amer. 1824.
 — *monstrosa* (monstrous). July. Britain.
 — *na'na* (dwarf). 6. June.
 — *nigra* (black-branched). 30. May. N. Amer. 1825.
 — *ovata* (egg-shaped). 30. May. N. Amer.
 — *oxycarpa* (sharp-fruited). 20. May. Caucasus. 1815.
 — *oxyphylla* (sharp-leaved). 20. South Europe. 1821.
 — *pallida* (pale). 30. May. N. Amer.
 — *pumosa* (cloth-leaved). 30. May. Carolina. 1820.

F. parvifolia (small-leaved). 20. May. Levant. 1822.
 — *platycarpa* (broad-fruited). 30. May. N. Amer. 1820.
 — *polemoniifolia* (great-Valerian-leaved). April. N. Amer. 1812.
 — *pubescens* (downy). 20. April. N. Amer. 1811.
 — *latifolia* (broad-leaved). 20. May.
 — *longifolia* (long-leaved). 20. May.
 — *subpubescens* (slightly-downy). 20. May.
 — *pulverulenta* (powdery). 30. May. N. Amer. 1824.
 — *quadrangulata* (four-angled-blue). 30. May. N. Amer. 1822.
 — *nerosa* (nerved). 30. May.
 — *Richardi* (Richard's). 30. May. N. Amer.
 — *rubicunda* (ruddy-veined). 30. May. N. Amer. 1824.
 — *ru'fa* (rusty). 30. May. N. Amer. 1822.
 — *sambucifolia* (elder-leaved). 30. May. N. Amer. 1800.
 — *crispa* (curled). 30. May.
 — *tamariscifolia* (tamarisk-leaved). April. Levant.
 — *versicolor* (many-coloured). May. Britain.
 — *vi'rens* (green). 20. May.
 — *variegata* (variegated). 20. April.
 — *viridis* (green). 30. May. N. Amer. 1824.
 — *xanthoxylodes* (achee-tree-like). North of India. 1845.

FREE-STONE peaches and nectarines are those with fruit, the flesh of which parts freely from the stone.

FREEZING. See FROST.

FREZIERA. (Named after *A. F. Frez.* a French traveller in South America. Nat. ord., *Theads* [Ternströmiaceæ]. Linn., 13-Polyandria 1-Monogynia. Allied to Lettisia.)

Greenhouse evergreen shrub, with the habit of a Laurel. Cuttings of half-ripened shoots in sandy soil, in heat, under a hand-light; lumpy peat and fibry loam, with a little sand. Summer temp., 60° to 75°; winter, 50° to 58°.

F. theoides (tea-like). 4. White. September. Jamaica. 1818.

FRENCH BEAN. See KIDNEY BEAN.

FRENCH MARIGOLD. *Tagetes patula*.

FRIE'SIA. (Named after *Dr. Fries*, of Lund. Nat. ord., *Lindenblossoms* [Tiliaceæ]. 11-Dodecandria 1-Monogynia. Allied to Elæocarpus.)

A fit plant for training against a conservatory wall. Cuttings of young shoots, rather firm, in sand, under a glass, in April; turfy loam and fibry peat, with a little sand. Winter temp., 36° to 45°.

F. pedunculata (peduncled). 6. White. Van Diemen's Land. 1818.

FRINGE-TREE. *Chionanthus*.

FRTILLA'RIA. Fritillary. (From *fritillus*, a chess-board; referring to the chequered flowers of some species. Nat. ord., *Lilyworts* [Liliaceæ]. Hardy bulbs, in close affinity with the true Lilies. Linn., 6-Hexandria 1-Monogynia.)

- F. alba* (white. American). 1. White. May. N. Amer.
 — *cupreus* (copper-coloured). 1½. Copper. July. Mexico. 1834.
 — *imperialis* (crown-imperial). 4. Dark yellow. April. Persia. 1596.
 — — *flava* (yellow-flowered). 4. Yellow. April. Persia. 1596.
 — — *rubra* (red-flowered). 4. Red. April. Persia. 1596.
 — *sca'ndens* (climbing). Yellow. April. Siberia. 1827.
 — *Kotschyana* (Kotschy's). ½. April. Hazart-schall. 1844.
 — *lanceolata* (spear-head-leaved). ¾. Dark purple. May. Kamtschatka. 1759.
 — *latifolia* (broad-leaved). 1. Red. May. Caucasus. 1694.
 — *leucantha* (white-flowered. Russian). 1. White. May. Siberia. 1822.
 — *Lusitanica* (Spanish). 1. Brown, purple. June. Spain. 1825.
 — *luttea* (yellow-flowered). 1. Yellow. May. Caucasus. 1812.
 — *meleagris* (Guinea-fowl-like). 1. Purple. May. Britain.
 — *meleagroides* (meleagris-like). 1. Purple. May. Siberia. 1824.
 — *Messanensis* (Messina). 1. Brown, purple. June. Italy. 1825.
 — *minor* (smaller). 1½. Purple-spotted. April. Altai Mountains. 1830.
 — *nervosa* (nerved-leaved). 1½. Dark purple. May. Caucasus. 1826.
 — *nigra* (black). 1. Yellow. Purple. May. Pyrenees. 1596.
 — *obliqua* (twisted-leaved). 1. Brown, purple. April. Caucasus.
 — *oxyptala* (sharp-petaled). 1½. Purple. June. Pindari.
 — *Persica* (Persian). 1½. Brown. May. Persia. 1596.
 — — *minima* (least. Persian). ½. Brown. May. Persia. 1596.
 — *præcox* (early-white). 1. White. May. Europe.
 — *pucl'ca* (chaste). 1. Purple, yellow. May. N. Amer. 1824.
 — *Pyrenaica* (Pyrenean). 1½. Dark purple. June. Spain. 1605.
 — *Ruthenica* (Russian). 1. Purple. May. Caucasus. 1826.
 — *tenuifolia* (slender). 1. Purple. May. Caucasus. 1826.
 — *tulipifolia* (tulip-leaved). 1. Brown, purple. May. Crimea. 1822.
 — *verticillata* (whorled). 1. Purple. April. Crimea. 1823.

FRITILLARY AS A FLORIST'S FLOWER.—*Propagation: by Offsets.*—The offsets are produced round the old bulbs; these should be detached every third year when the bulbs are taken up, and be planted in a bed of light, rich earth, each variety by itself, where they may remain till they are large enough to flower. Then take them up, and plant them in October, either in 5½-inch pots, three or four bulbs in a pot, or plant them in patches near the front of the mixed flower-border. The above remarks apply only to the smaller kinds of *Fritillaria*. The noble

F. imperialis, when the bulbs attain a certain size, produces two flower-stems, and each stem perfects a bulb. They may then be taken up, divided, and replanted. This species, on account of flowering early, may be planted when divided into beds in the grouped flower-garden, which they will highly ornament, and will die down early enough to be succeeded by summer flowers. This species is too large for pots.

Soil.—The Crown Imperial, with its varieties, should be planted in a deep, rich soil, well drained. If the soil is not rich, it must be made so by the addition of a good dressing of well-decomposed manure. The stems send out, just above the bulbs, a large number of young strong shoots. The plants will be benefited in that stage by a top-dressing of very decayed dung placed close to the stems.

If the smaller species be cultivated in pots, the proper soil for them will be a compost of turfy loam, peat, and vegetable mould, in equal parts.

Growing Season.—All the smaller kinds of the Fritillary will flower beautifully in pots. Pot them in October in 5½-inch pots, four bulbs in each, in a light, rich compost. Plunge the pots in coal-ashes in a bed, and protect them through the winter with hoops and mats. There they may remain till they flower, and then be removed into the greenhouse. When intended to bloom in the open ground, plant them in patches in the mixed flower-border.

Resting Season.—As soon as the blooming season is over and the leaves decayed, take the bulbs up, and keep them in a cool, rather moist place, till the season for planting arrives again.

FROG ORCHIS. *Gymnadenia virens*.

FROST. If a plant be frozen, (and though some defy the attacks of frost, others are very liable to its fatal influence,) death is brought upon them as it is in the animal frame, by a complete breaking down of their tissue; their vessels are ruptured, and putrefaction follows.

The following contingencies render a plant especially liable to be frozen:—

First.—Moisture renders a plant susceptible of cold. Every gardener knows this. If the air of his greenhouse be dry, the plants within may be submitted to a temperature of 32° without injury, provided the return to a higher temperature be gradual.

Secondly.—Gradual decrements of temperature are scarcely felt. A myrtle may be forced and subsequently passed to the conservatory, to the cold-pit, and even thence to an open border, if in the south of England, without enduring any injury from the cold of winter; but it would be killed if passed at once from the hothouse to the border.

Thirdly.—The more saline are the juices of a plant, the less liable are they to congelation by frost. Salt preserves vegetables from injury by sudden transitions in the temperature of the atmosphere. That salted soil freezes with more reluctance than before the salt is applied, is well known, and that crops of turnips, cabbages, cauliflowers, &c., are similarly preserved, is equally well established.

Fourthly.—Absence of motion enables plants to endure a lower degree of temperature. Water may be cooled down to below 32° without freezing; but it solidifies the moment it is agitated.

The seeds of some plants are benefited by being frozen, for those of the rose and the hawthorn never germinate so freely as after being subjected to the winter frosts.

Freezing is beneficial to soils, not only by destroying vermin within its bosom, but by aiding the atmosphere to pervade its texture, which texture is also rendered much more friable by the frost. A soil in our climate is rarely frozen to a depth of more than four inches, and in extremely hard winters it does not penetrate more than six inches in light soils, and ten inches in those that contain more clay, or an excess of moisture.

If a plant be frozen, dip it into the coldest water, or syringe it, and put it into a dark, cold cellar, so that it may thaw gradually.

FROST, DEGREES OF. When a gardener uses this phrase, he means degrees of cold below 32°, the freezing point of water.

FROTH-FLY. See TETTIGONIA.

FRUIT-ROOM. Fruit for storing should be gathered before it is quite mature; for the ripening process, the formation of sugar, with its attendant exhalation of carbonic acid and water, goes on as well in the fruit-room as in the open air at the season when the functions of the leaves have ceased, and the fruit no longer enlarges. In gathering fruit, every care

should be adopted to avoid bruising; and, to this end, in the case of apples, pears, quinces, and medlars, let the gathering basket be lined throughout with sacking, and let the contents of each basket be carried at once to a floor covered with sand, and taken out one by one, not poured out, as is too usual, into a basket, and then again from this into a heap; for this systematic mode of inflicting small bruises is sure to usher in decay, inasmuch as that it bursts the divisional membranes of the cells containing the juice, and this being extravasated, speedily passes from the stage of spirituous fermentation to that of putrefaction. To avoid this is the principal object of fruit storing, whilst, at the same time, it is necessary that the fruit shall be kept firm and juicy. Now it so happens that the means required to secure the one also effects the other.

The following, we think, will be found safe principles to guide the inexperienced:—

Site.—A somewhat low level, with a sub-soil, perfectly dry, or rendered so. We have said low, because we feel assured that by keeping the floor, if possible, even a little below the ground level, less fluctuation of temperature will be experienced. Sooner, however, than be liable to much damp, we would go as much above the level as is necessary in order to avoid it. Concrete should be used for the flooring, and a portion of the foundation walls done in cement, to prevent the transmission of damp upwards by capillary attraction. The rats and mice are great annoyances; the cement and concrete would keep them at arm's length. A preventive drainage may be applied also round the exterior, if the locality be damp.

Aspect.—An easterly or northerly one; any point but south or south-west.

Frost.—The house to be rendered perfectly secure against this. We would never have the general store-room sink below forty or rise above fifty degrees. To create an artificial warmth, and merely to keep out the cold, or rather, to procure, as much as possible, the amount of warmth which the interior possesses, are two very different affairs. The preservation of the natural interior warmth in winter is best effected by double walls, possessing a cavity of some three inches in width. The power of what are termed

hollow walls, as non-conductors of heat, is well known. Neither can exterior damps be readily transmitted; and, moreover, such are cooler in summer; for the sluggish agency of such walls in transmitting heat is as much in keeping out summer heats as the colds of winter. If the roof is an exterior one, it should either be double, or other means taken to keep out the summer heat.

Air.—The power of thorough ventilation when necessary, and equally the power of rendering it almost hermetically sealed is necessary. Of course, a very liberal ventilation is needed when much fruit is housed in the autumn. There should, therefore, be a special provision for both the egress of moisture, and for the ingress of fresh and dry air. The higher the level at which the latter enters, the brisker will, in general, be the circulation.

Light.—Windows to admit light, of course, for the sake of operations in the room; generally speaking, however, a fruit-room cannot be kept too dark. Most good practitioners agree in the necessity of excluding light as much as possible. Scientific men say, that the surface skin of fruits perspires exactly as the surface of leaves, and that light is a prime agent in inducing such perspiration: hence, heat and light are conjoint causes of shrivelling. The windows or other apertures, therefore, must be provided with close-fitting shutters, and these should be double, even as the walls. During severe weather, mats enclosing hay may be fastened over the exterior.

As to artificial heat, we think every good general fruit store-room should open into a small closet, which should be so fitted up as to produce an artificial warmth when necessary. If adjoining a mushroom-house on the one side, or any place where a surplus of heat was available, such would be readily accomplished without extra expense in fuel. Some persons have advocated the placing piping to convey heat inside the cavity of the exterior walls: this sounds somewhat philosophical, inasmuch as in such a situation, with a slight amount of controllable ventilation, the non-conducting cavities might be kept dry and warm. The situation of pipes or other apparatus, however, should depend on the arrangement made for the fruit; the heating source, pipes, &c., being as far re-

moved from them as possible, and certainly not immediately beneath them. Such a little closet might possess merely a stand for drawers down the centre; which stand should be an exact counterpart of a stand in the centre of the general store-room; and the best pears, or other tender fruits, being placed in parcels in the general store, might be removed in portions to this ripening room, a whole drawer at once, without moving the fruit.

FUCHSIA. (Named after *Leonard Fuchs*, a German botanist. Nat. ord., *Onagraceæ* [Onagraceæ]. Linn., 8-*Octandria* 1-*Monogynia*.)

When gardeners discover the way to improve the size and flavour of fruits, we cannot doubt but that those of the *Fuchsia* and *Cactus* will be among the first novelties in the dessert.

- F. alpestris** (mountain). 20. Crimson. August. Brazil. 1841.
 — **apetala** (no-petaled). 10. Purple. September. Chili. 1824.
 — **arborescens** (tree-like). 16. Pink. October. Mexico. 1824.
 — **bacillaris** (rod-branched). 5. Rose. July. Mexico. 1829.
 — **coccinea** (scarlet). 6. Scarlet, purple. August. Chili. 1788.
 — **conica** (conical). 4. Scarlet, purple. August. Chili. 1825.
 — **cordifolia** (heart-leaved). 5. Orange. August. Mexico. 1840.
 — **corymbiflora** (cluster-flowered). 6. Scarlet. August. Peru. 1840.
 — **cylindracea** (cylindrical-flowered). 2. Scarlet. August. Demerara. 1837.
 — **denticulata** (toothed). Crimson. August. Brazil.
 — **depndens** (pendent-flowered). 4. Crimson. June. Brazil. 1848.
 — **discolor** (two-coloured). 3. Purple, red. August. Port Famine. 1830.
 — **exorticata** (barked). 3. Green, purple. July. New Zealand. 1824.
 — **fulgens** (glowing). 4. Vermilion. July. Mexico. 1830.
 — **gracilis** (slender). 8. Scarlet, purple. August. Chili. 1823.
 — — **multiflora** (many-flowered). 6. Scarlet, purple. August. Chili. 1824.
 — **integrifolia** (whole-leaved). Red. June. Brazil. 1841.
 — **macrantha** (large-flowered). 2. Red. April. Peru. 1845.
 — **macrostemon** (long-stamened). 3. Scarlet, purple. July. Chili. 1823.
 — **microphylla** (small-leaved). 6. Scarlet, purple. August. Mexico. 1828.
 — **negricans** (dark). Dark crimson. Venezuela. 1843.
 — **radicans** (rooting). 20. Scarlet. September. Brazil. 1837.
 — **serratifolia** (saw-edge-leaved). 5. Scarlet, green. August. Peru. 1844.
 — **simplicifolia** (simple-stemmed). Crimson. July. Brazil.
 — **spectabilis** (showy). 4. Scarlet. August. Andes of Cuenca. 1847.
 — **splendens** (splendid). 6. Scarlet, green. August. Mexico. 1841.

- F. tenella* (delicate). 8. Scarlet, purple. August. Chili. 1824.
 — *tetradactyla* (four-fingered-stigma). 2. Rose. July. Guatemala. 1842.
 — *triphylla* (three-leaved). Crimson. September. Pichinchia. 1842.
 — *venusta* (beautiful). 6. Purple. October. Mexico. 1825.
 — *virgata* (twiggy). 4. Scarlet, purple. August. Mexico. 1825.

FUCHSIA CULTURE.—*Propagation: by Cuttings.*—The best time for this is in February and March. The plants require a little heat to stimulate them into growth. The best kinds of cuttings are the young shoots taken off close to the old wood as soon as they are an inch long. Fill a sufficient number of 5-inch pots with a compost of loam and leaf-mould, in equal parts, to within an inch of the top; fill the remaining space up with silver sand; water it gently to make it firm, then put in the cuttings after trimming off the lower leaves, give another gentle watering, and place them in a mild hotbed, or in a propagating house. If in the latter, place hand-glasses over them. The cuttings will soon strike root, and should then be potted off into the smallest pots; shade them from the sun for a time, and then repot them into pots two sizes larger.

By Seed.—They are as easily raised from seeds as by cuttings. The object of raising them in this way is not so much to increase the plants as to raise improved varieties. There are two divisions, in regard to colour, that should be aimed at—light and dark varieties, and the colours in each ought to be well defined. The light ones should have the sepals pure white, and the corolla rich purple. Size is also a necessary quality, and a good form is also indispensable. The sepals should be stout and broad and well reflexed; that is, turned upwards, to show off the corolla to the greatest advantage. The corolla should be large, and protrude boldly out from the sepals. It should be round and cup-shaped. The flower-stalk should be not less than three inches long, which will allow the flower to hang down gracefully. The flowers should be produced abundantly, and the foliage not too large or coarse. The same points should appear in the dark varieties, except the colour of the sepals, which should be of the brightest scarlet or crimson. Though a fine self-coloured flower, with every good point, is not to be despised, yet a purple

corolla, with the scarlet or dark crimson tube, all other points being present, is the perfection of a good dark Fuchsia.

Saving the Seed.—Any variety possessing one or more of the above qualities, (form being indispensable) is one to save seed from. Supposing a fine-shaped flower, with a tolerably pure white tube, but deficient in a good corolla of the right form and colour; then take the pollen of a variety that has a good corolla, and apply it to the stigma of the one with a good tube and sepals, and save the seed. The same principle must be followed to improve the dark varieties. When the seed is ripe, gather the berries, crush them with the fingers, and wash away all the pulp; then spread the seed on a sheet of paper, and expose it to the sun till it is dry. Then put it up in brown paper, and store it away till March; sow it then in shallow pots, potting off the plants as soon as they can be handled, and grow them on till they flower. Seedlings will flower in 4-inch pots, so that a great number of them may be grown in a small space. As soon as they flower, choose such as have good points; and give them a good shift into larger pots.

Summer Culture.—Pot the old plants early in the spring. Commence by shaking off the greater part of the old soil, reducing the roots and trimming in the branches, so as to leave them in a pyramidal form; pot in the proper soil, and place them in a heat of 55° by day, and 50° by night. Water moderately, and syringe overhead frequently. When the plants are freely growing, give weak liquid-manure every other time. Young plants should have a good shift from 5-inch to 8-inch pots. The tops should be nipped off, to force out the lower branches, the great object being the pyramidal form. One of the upper shoots should be removed as soon as the lower ones have pushed a few inches, and the other tied to a stick, to be again stopped when it has advanced about a foot. Proceed in this way, with both old and new plants, till the desired height is attained. The side-shoots, if not sufficiently numerous, should be stopped also, to cause the right number of side branches to be produced. The potting should finish in 12-inch pots, which are sufficiently large to make fine plants fit for the exhibition tables.

Winter Culture.—As soon as the bloom

is over set the young plants out of doors in some open place in the garden. The older plants may either be thrown away, or be planted out in the borders, it not being worth while to keep them the third year. When the frost begins to appear take the plants under cover, either under the stage of the greenhouse, or in a back shed, or even a cellar, where the severe frost cannot reach them; here they may remain without water till the potting time comes round again.

Soil.—Mellow, strong, yellow loam one-half, well-decomposed hotbed manure one-quarter, and one year old decayed tree leaves one quarter, all thoroughly mixed, will form a suitable compost.

Insects.—The green fly and red spider are very apt to find their way to the young shoots. See APHIS and ACARUS.

Open Border Culture.—The whole of those having the habit of the old *cocci'nea*, *virga'ta*, *co'nica*, *gra'cilis*, *globo'sa*, &c., are well-fitted for flower-garden purposes; requiring no attention but cutting them down after the first frost, and covering the stools with moss, coal-ashes, or other litter, to exclude the frost, removing it in April, and thinning the shoots in May. When it is desirable to keep such kinds as *cocci'nea* as dwarf as *globo'sa*, raising the plants out of the ground in May, and shaking the soil from them before transplanting them, will be effectual. This, also, furnishes a good means for increasing the stock. Good stout cuttings of the stems, planted at the end of October, in the open ground, will furnish nice little plants in spring, if the ground is covered with moss or litter; for though what is above ground will be killed, what is below the moss will be safe. Those like *fu'lgens* in their habit must be kept dry if left out; it is better to take them up, and house them in a shed where frost will not reach them. *Standards of any kinds* for the lawn may be thus inserted in dry earth in a shed, and transplanted again in April or May. Most of the hybrids will stand the winter in the open garden, and push strongly in the spring, if, in addition to being kept from frost, they are also kept dry. Though thus able to endure cold, they will, also, stand a high temperature and a moist atmosphere when growing, and, in these circumstances, grow with great rapidity. *F. corymbiflo'ra* must have the wood well ripened, and not be pruned too

close. *Specta'bilis* and *serratifo'lia* are late blowers, and must be treated accordingly. All sorts in pots look best trained to a simple stem.

FUEL is no small item in the annual expenditure of the stove, greenhouse, and conservatory departments, and therefore deserves consideration. The cheapest of all fuel is the *breeze*, or small coke, procurable at gas-works.

The heating qualities of the different coals known in Great Britain are in the following proportions:—

Scotch Cannel	- - - -	199
Lancashire Wigan	- - - -	196
Yorkshire Cannel	- - - -	188
Newcastle (best Wallsend)	- - - -	169
Gloucestershire (Forest of Dean)	- - - -	108
Welsh (common)	- - - -	25

Hence, if the Scotch Cannel coal cost 19s., when the Gloucestershire could be had for 10s. per chaldron, the latter would be no cheaper; for the heating powers of the first are as 199 to 108 of the latter. In other words, 108 chaldrons of Scotch would afford as much heat as 199 chaldrons of Staffordshire.

The following are the quantities of the fuels named required to heat eight gallons of water, from 52° to 112°.

	lbs.
Caking coals	- - - - 1.2
Splint or hard coal	- - - - }
Cannel Coal	- - - - 3.13
Cherry or soft coal	- - - - 1.5
Wood of lime	- - - - 3.10
— beech	- - - - 3.16
— elm	- - - - 3.52
— oak (chips)	- - - - 4.20
— ash	- - - - 3.50
— maple	- - - - 3.00
— service	- - - - 3.
— cherry	- - - - 3.20
— fir	- - - - 3.52
— poplar	- - - - 3.10
— hornbeam	- - - - 3.37
Peat (average, not compressed)	- - - - 7 6
Charcoal of wood	- - - - 1.52
— peat	- - - - 3.28

It is essential to good and profitable fuel that it should be free from moisture; for unless it be dry, much of the heat which it generates is consumed in converting that moisture into vapour: hence the superior value of old dense, dry wood, to that which is porous and damp. A pound of dry will heat thirty-five pounds of water from 32° to 212°; but a pound of the same wood in a moist or fresh state will not similarly heat more than twenty-five pounds. The value, therefore, of different woods for fuel is nearly inversely, as their moisture; and this may be readily ascertained by finding how

much a pound weight of the shavings of each loses by drying during two hours, at a temperature of 212°.

FUGO'SIA. (Named after *Bernard Cien-Fuegos*, a Spanish botanist. Nat. ord., *Mallowworts* [Malvaceæ]. Linn., 16-*Monadelphina* 8-*Polyandria*. Allied to *Malvaviscus*.)

Stove evergreen shrubs. Cuttings of the points of shoots in April or May, in sand, under a bell-glass, and placed in a mild bottom heat; peat and loam, with a little silver sand. Summer temp., 60° to 75°; winter, 45° to 55°.

F. Hakeaefolia (Hakea-leaved). 5. Lilac, red. August. Swan River. 1846.
— **heterophylla** (various-leaved). Yellow, red. August. St. Martha. 1845.

FULL-FLOWER. See **DOUBLE-FLOWER.**

FUMA'RIA. Fumitory. (From *fumos*, smoke; referring to the disagreeable smell of the plant. Nat. ord., *Fumeworts* [Fumariaceæ]. Linn., 17-*Diadelphina* 2-*Hexandria*. Allied to *Corydalis*.)

Hardy annuals. If once sown in March or April, on rock-work, or undisturbed banks, they will sow themselves annually, and maintain themselves without care or trouble.

F. capreolata (tendriled). 4. Flesh. July. Europe. Climber.

— **Burchellii** (Burchell's). 4. April. Cape of Good Hope. 1816.

— **leucantha** (white-flowered). 1½. White. August. Corsica. 1836.

— **medea** (intermediate). 3. Flesh. July. Britain.

FUMIGATING is employed for the destruction of certain insects; the inhaled vapour or smoke arising from some substances being fatal to them. *Tobacco* is the usual substance employed; and it may be ignited, and the smoke impelled upon the insect by *bellows*; or the ignited tobacco may be placed under a box, or within a frame, together with the affected plant. The vapour of *spirit of turpentine* is destructive to the scale and other insects, employed in this mode. Mr. Mills has stated the following as the best mode of fumigating with tobacco. According to the size of the place to be fumigated, one or more pieces of cast iron, one inch thick, and three inches over, are made red hot (pieces of old tiles, such as are used for covering smoke flues, would probably answer equally well); one of these is placed in a twenty-four sized pot, on which is put the quantity of tobacco considered necessary to charge the structure with smoke sufficient to destroy insect life. To fumigate an ordinary sized eight-light house, use three heaters, and three twenty-four sized pots, which are best placed on the front flue or walk; one

pound of strong tobacco is put on the three heaters in equal parts, and this is found sufficient to fill the house, so as to destroy all the kinds of insects that perish by fumigation. The system has these advantages: the tobacco is so quickly consumed, that the house is completely filled in a very short time, and but little smoke can escape before the insects are destroyed; the pure heat from the iron heaters prevents injury from gas, and as no blowing is required there is no dust, it being only necessary to put the tobacco on the heaters and leave the house. A better mode is to soak the tobacco in a strong solution of saltpetre, and when dry to ignite it. The combustion is so complete and instantaneous that a smaller quantity is sufficient. The best of all instruments for fumigating with tobacco is *Brown's Fumigator*.

To fumigate with *sulphur*, paint the hot-water pipes with some sulphur mixed with whitewash; or put this mixture against the side of the flue furthest from the furnace; or put some sulphur on a hot-water plate, and keep the water in this boiling by means of a lamp.

FUMITORY. *Fuma'ria*.

FU'NKIA. (After *H. Funk*, a German botanist. Nat. ord., *Lilyworts* [Liliaceæ]. Linn., 6-*Hexandria* 1-*Monogynia*. Allied to *Hymenocallis*.)

Hardy herbaceous perennials, from Japan; dividing the roots; sandy loam, and a dry situation.

F. albomarginata (white-margined). 1½. Lilac. July. 1837.

— **lanceaefolia** (spear-head-leaved). 1. Lilac. August. 1829.

— **ovata** (egg-leaved). 1½. Blue. May. 1790.

— **Sieboldiana** (Siebold's). 1. Lilac. June. 1830.

— **subcordata** (slightly-heart-leaved). 1. White. August. 1790.

— **undulata** (waved-leaved). 1. Lilac. August. 1834.

— **variegata** (variegated). 1. Lilac. August. 1834.

FURCRA'A. A mistaken name for *Foucrera'ya*.

FURZE. *Ulex*.

FUSTIC. *Macraura tinctoria*.

G.

GÆRTNERA. (Named after *Dr. Gärtner*, a celebrated botanist. Nat. ord., *Loganiads* [Loganiaceæ]. Linn., 10-*Decandria* 1-*Monogynia*. Allied to *Logania*.)

All *Loganiads* are to be suspected, as no order is more venomous. Stove evergreen twiners; cuttings of firm young shoots in April, in sand, under a bell-glass, and in bottom-heat; peat and loam. Summer temp., 60° to 75°; winter, 45° to 55°.

G. obtusifolia (blunt-leaved). 20. White. China. 1810.

— *racemosa* (racemed). 15. White, yellow. April. E. Ind. 1793.

GAL'GEA. (Named after Sir Thomas Gage. Nat. ord., *Lilyworts* [Liliaceæ]. Linn., 6-*Hexandria* 1-*Monogynia*. Allied to the Tulip.)

All hardy little yellow-flowering bulbs. They should occupy the front row of a light-soiled border, like Crocuses; offsets in spring or autumn.

G. Bohemica (Bohemian). 4. April. Bohemia. 1825.

— *bracteolaris* (small-bracted). 4. April. Europe. 1817.

— *bulbifera* (bulb-bearing). May. Tauria. 1829.

— *chlorantha* (yellow-flowered). 4. April. Siberia. 1819.

— *circinata* (rounded). 4. May. Siberia. 1789.

— *fascicularis* (bundle-flowered). 4. April. Britain.

— *glauca* (milky-green). 4. April. Switzerland. 1825.

— *Liottardi* (Liottard's). May. South Europe. 1825.

— *Podolica* (Podolian). May. Podolia. 1827.

— *pustilla* (small). 4. April. Bohemia. 1825.

— *pygmaea* (pigmy). 4. April. Spain. 1825.

— *serotina* (late). 4. June. Wales.

— *sphaulacea* (sheathed). 4. May. Germany. 1759.

— *stellaris* (starry). 4. May. Sweden. 1759.

— *Sternbergii* (Sternberg's). 4. May. Switzerland. 1826.

— *striata* (streaked). 4. July. Europe. 1826.

— *syriatica* (wood). 4. April. Europe.

— *uniflora* (one-flowered). 4. May. Siberia. 1781.

— *villosa* (shaggy). 4. April. Caucasus. 1825.

GAGNEBI'NA. (Probably the native name of one of the species. Nat. ord.,

Leguminous Plants [Fabaceæ]. Linn., 10-*Decandria* 1-*Monogynia*. Allied to

Mimosa.)

Stove evergreens, from Mauritius. Seeds in hotbed, in spring, after being moistened for several hours in warm water; cuttings of half-ripened shoots in sand, in April, under a bell-glass, and in mild bottom-heat; peat and loam, both turfy and fibry. Summer temp., 60° to 75°; winter, 48° to 55°.

G. arillaris (axillary). 6. Yellow. 1824.

— *tamariscina* (tamarisk-like). 6. Yellow. 1824.

GAILLARDIA. (Named after M. Gaillard, a French patron of botany. Nat.

ord., *Composites* [Asteraceæ]. Linn., 19-*Syngenesia* 3-*Frustranea*.)

This, like many other composite genera, is inclined to sport from seeds, and, therefore, may be expected to yield double flowers some day. Hardy herbaceous plants, with the exception of

coronata, which requires a cold pit in winter. In cold, damp situations, cuttings of *bicolor* and

picta may also be saved in a similar manner. Cuttings under a hand-light in summer, and division of the root in spring; sandy loam.

G. aristata (awned). 1. Orange. August. N. Amer. 1812.

— *bicolor* (two-coloured). 2. Yellow. August. N. Amer. 1787.

— *coronata* (crowned). Red, brown. July.

G. Drummondii integririma (Drummond's whole-leaved). 2. Carnation, yellow. August. Louisiana. 1833.

— *picta* (painted). Yellow. August. Louisiana. 1833.

— *Richardsoni* (Richardson's). 14. Orange. July. N. Amer. 1829.

GALA'TTIA. (From *gala*, milk: in reference to the milky juice of some of the species. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 17-*Diadelphia* 4-*Decandria*. Allied to *Glycine*.)

Deciduous, by division of the plant, and grown in sandy loam. Stove, by cuttings of short, stubby side-shoots in sand, in April, under a bell-glass, and plunged in a hotbed; sandy loam and peat. Summer temp., 60° to 75°; winter, 45° to 55°.

HARDY DECIDUOUS TWINERS.

G. glabella (smoothish). 3. Purple. July. N. Amer.

— *molliis* (soft). 3. Purple. July. N. Amer. 1827.

STOVE EVERGREEN TWINERS.

G. Cubensis (Cuban). Rose. July. Cuba. 1826.

— *pendula* (pendulous). 6. Red. July. Jamaica. 1794.

— *sericea* (silky). 6. July. Bourbon. 1824.

GALACTITES. (From *gala*, milk; referring to the juice and to the milk-white

veins on the leaves. Nat. ord., *Composites* [Asteraceæ]. Linn., 19-*Syngenesia* 3-

Frustranea. Allied to *Silybum*.)

Hardy annuals, requiring to be sown in the flower-borders in March or April.

G. australis (southern). 1. Purple. July. N. Holland. 1824.

— *tomentosa* (woolly). 14. Purple. July. South Europe. 1738.

GALACTODE'NDRON. Cow-tree. (From

gala, milk, and *dendron*, a tree. We introduce this name as being in common

use; but the true name of the Cow-tree is *Bro'simum utile*, to which refer.)

GALANGALE. *Kœmpferia*.

GALA'NTHUS. Snowdrop. (From *gala*,

milk, and *anthos*, a flower. Nat. ord.,

Amaryllids [Amaryllidaceæ]. Linn., 6-

Hexandria 1-*Monogynia*.)

Hardy bulbs. Offsets; division of masses of bulbs; common garden-soil; should be lifted every four or five years.

G. nivallis (common. Snow). 4. White. February. Britain.

— *plicatus* (plaited). 4. White. February. Crimea. 1818.

— *reflexus* (bent-back-petaled). White, green. Mount Gargarius. 1844.

GALATE'LLA. (A diminutive of *gala*,

milk, literally, *milky*; referring to the colour of the leaves. Nat. ord., *Com-*

posites [Asteraceæ]. Linn., 19-*Syngenesia* 3-*Frustranea*. Allied to *Aster*.)

Hardy herbaceous. Division in spring; common garden-soil.

G. punctata (dotted-leaved). 2½. Violet, yellow. August. Hungary. 1815.

GALAX. (From *gala*, milk; referring to the milk-white flowers. Nat. ord., *Wintergreens* [Pyrolaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Pyrola*.)

Little bog-earth plants. Divisions in spring; moist, sandy peat; may be treated as an alpine, as it is subject to casualties in the border.

G. apyfla (leafless). ½. White. July. N. Amer. 1786.

GALA'XIA. (From *galaktido*, to abound in milk; referring to the juice. Nat. ord., *Irids* [Iridaceæ]. Linn., 16-*Monadelphica* 1-*Triandria*. Allied to *Patersonia*.)

Greenhouse bulbs, from the Cape of Good Hope. Offsets; sandy peat, with a little fibry loam. In a state of rest keep in the greenhouse or cold pit. If planted in a sheltered place, out of doors, the roots must be protected from frost.

G. graminea (grass-leaved). ½. Light yellow. July. 1795.

— *grandiflora* (large-flowered). ½. Dark yellow. July. 1799.

— *mucronularis* (hard-pointed). ½. Purple. July. 1799.

— *ovata* (egg-leaved). ½. Dark yellow. July. 1799.

— *versicolor* (various-coloured). ½. Purple. July. 1799.

GALEA'NDRA. (From *galea*, a helmet, and *aner*, a stamen; referring to the crested male organ on the top of the column. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-*Gynandria* 1-*Monandria*. Allied to *Eulophia*.)

Stove terrestrial orchids. Fibry peat, and a little turfy loam, with some broken pots, and pieces of charcoal. Summer temp., 60° to 85°, with moisture; winter, 48° to 55°, and rather dry.

G. Baueri (Mr. Bauer's). ½. Pink. August. Guiana. 1840.

— *cristata* (crested-anthered). Purple. May. Cayenne. 1844.

— *Devonia* (Duke of Devonshire's). 2. Purple, white. May. S. Amer. 1840.

— *gracilis* (slender). 2. Green, yellow. May. Sierra Leone. 1822.

GALE'GA. Goat's Rue. (From *gala*, milk; referring to an old idea that the herbage was superior for milk-cows, goats, &c. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 16-*Monadelphia* 6-*Decandria*.)

Hardy herbaceous, rather rambling perennials. Seeds sown in spring; division of the plant at the same time; common soil.

G. biloba (two-lobed). 3. Blue. July. 1823.

— *officinalis* (shop). 4. Blue. July. Spain. 1568.

— *albha* (white-flowered). 4. White. July. Spain.

— *orientalis* (eastern). 4. Blue. July. Levant. 1801.

— *Persica* (Persian). 2. White. July. Persia. 1826.

— *lilacina* (lilac). 3. Lilac. June. Persia. 1830.

— *tricolor* (three-coloured). 3. Blue. July. 1822.

GALEO'DOLON. Dead Nettle. (From *gale*, weasel, and *bdolos*, fœtid; referring to the strong disagreeable odour of the plant. Nat. ord., *Labiates*, or *Lipworts* [Lamiaceæ]. Linn., 14-*Didynamia* 1-*Gynnospermia*.)

This herbaceous British plant has so long gone by the name *Galeobdolon*, that we have retained it; but it is only a species of *Lamium*. Division in spring; moist, common soil.

G. luteum (yellow). 1. Yellow. June.

— *variegatum* (variegated-leaved). 1. Yellow. May.

GALIP'E'A. (The Indian name in South America. Nat. ord., *Rueworts* [Rutaceæ]. Linn., 2-*Diandria* 1-*Monogynia*. Allied to *Almeidea*.)

The *Angostura* bark is that of *trifolia'ta*. Stove evergreen shrubs. Cuttings of ripened shoots in sand, under a bell-glass, in April, and in heat; peat and loam. Summer temp., 60° to 75°; winter, 48° to 55°.

G. odoratissima (most fragrant). 2. White. May. Rio Janeiro.

— *trifolia'ta* (three-leaved). 4. Green. Guiana. 1816.

GAL'LIUM. Bed Straw. (From *gala*, milk; referring to the flowers of *G. ve'rūm* having been used to curdle milk. Nat. ord., *Stellates* [Galiaceæ]. Linn., 4-*Tetrandria* 1-*Monogynia*. Allied to *Rubia*.)

Few of these plants are interesting to the gardener, except to cover rock or root-work. They possess, in a more or less degree, the dyeing qualities of Madder. Of the following selected species all are herbaceous perennials, except *G. suave'olens*, which is an annual. Annuals merely require to be sown in the common border, in March; and the perennials divided at the same time.

G. campanulatum (bell-flowered). ½. White. June. South Europe. 1821.

— *capillipes* (hairy-stalked). 1. White. October. Russia. 1838.

— *Græcum* (Grecian). ½. Purple. July. Candia. 1798.

— *Persicum* (Persian). Yellow. July. Persia. 1837.

— *purpureum* (purple). 1. Purple. July. Switzerland. 1831.

— *rubrum* (red). 1. Purple. July. Italy. 1597.

— *suave'olens* (sweet-scented). 1. White. July. North Europe. 1821.

— *Tauricum* (Taurian). ½. Yellow. July. Tauria. 1818.

— *Vaillantii* (Vaillant's). 2. Green. May. England.

GALL is a tumour formed in consequence of the part being punctured by an insect, the tumour becoming the nidus of the insect brood. The Oak-apple caused by the *Cynips querci* is a familiar example; as, also, are the bunches of leaves, not unlike a rose, on the Rose Willow, and the mossy tufts on the twigs of the Wild Rose, and erroneously called

Bed-guar. These tufts are caused by the *Cynips rosæ*, another species of Gall-fly.

GALPH'NIA. (An anagram of *Malpighia*, to which it is nearly allied. Nat. ord., *Malpighiads* [*Malpighiaceæ*]. Linn., 10-*Decandria* 3-*Trigynia*.)

Stove evergreens, from Mexico, with yellow flowers. Cuttings of young shoots, firm but not too old, in sand, under a bell-glass, and in bottom-heat; peat and loam. Summer temp., 60° to 75°; winter, 40° to 55°.

G. glauca (milky-green). 8. 1829.

— *glandulosa* (glanded). April. 1824.

— *hirsuta* (hairy). September. 1824.

GAMMA MOTH. Just after sunset, in October, and hovering round flowers, may be seen this moth (*Noctua gamma*). It is called the Gamma Moth, because about the middle of the upper wings, but towards their inner border, there is a silvery shining mark, like the Greek letter gamma (γ). The shape of this mark has acquired to this insect another name,



the Y-Moth. The outspread wings are about an inch across; the upper ones grey-coloured, marbled with brown, and shining; the under wings pale ash, with a brown edge; the head and throat brownish, edged with grey lines; the belly, or abdomen, yellowish-grey, tufted with brown hairs. In October they deposit their eggs; and it would be an aid to the warfare against them to ascertain what plants they select for this purpose. The eggs hatch at various times from May to September, but chiefly during July. The caterpillars proceeding from them are green, beset with greenish single hairs; head brownish-green; on the back and sides three or four yellowish-white lines; feet twelve in number, and marked with a yellow stripe. These caterpillars commit great ravages, especially in the south of England, upon our peas and other garden vegetables, the best remedy for which is hand-picking.

GANGRENE. See **CANKER**.

GARC'NIA. Mangosteen. (Named after Dr. Garcia, an eastern traveller. Nat. ord., *Cuttifers* [*Clusiaceæ*]. Linn.,

11-*Dodcandria* 1-*Monogynia*. Allied to *Mammea*.)

Of all the fruits in the East, that of *G. Mangostena* is the most highly extolled by Europeans; and the Gamboe from Siam is furnished by *G. Gambo'gia*. Stove evergreen trees. Cuttings of ripened shoots in sand, under a bell-glass, in a strong bottom-heat; peat and loam. Summer temp., 60° to 90°, with moist atmosphere; winter, 60° to 65°.

G. cornea (horny). 30. Yellow. E. Ind. 1823.

— *Cowa* (Cowa). 20. Yellow. E. Ind. 1822.

— *Gambo'gia* (Gamboe). 30. Yellow. E. Ind. 1820.

— *Mangost'na* (Mangosteen). 20. Purple. Java. 1789.

GARDEN BALSAM. *Justi'cia pectoralis*.

GARDEN BEETLE. In June and July, a small, pretty beetle very often may be found among the petals of white roses. It is nearly half an inch long, and rather less than a quarter of an inch broad. Its wing-cases are reddish-brown, shining, and shorter than the body; the body and head are dark green, and the antennae reddish, having at their ends a dark green club. This is the garden beetle (*Phyllopertha horticola* and *Melolontha horticola* of some). It feeds on the leaves of apples, pears, and roses, gnawing them full of small holes, and even transferring its attacks to the young fruit of the apple. During the latter part of July the female retires into the earth for the purpose of there depositing her eggs, from which the grubs are speedily produced, and feed upon the roots of plants. The only mode of reducing the number of these beetles is by searching for them during the evening, when, if detected, they stiffen their outstretched legs, and feign death; but in the day they fly about swiftly, and are captured with great difficulty.

GARDEN PEBBLE-MOTH (*Scopula sordicularis*). The perfect insect, says Mr. Curtis, measures rather more than an inch across when its wings are expanded. The upper pair are hazel-coloured, with four stripes, two of which are distinct, and the other faint; the under wings as well as the body are whitish; and on the former, near the centre, there is a curved brown streak, and another black on the margin. The first brood of caterpillars occurs in May, and the second in the autumn; and when very numerous they do considerable injury to cabbages and plantations of horse-radish. The caterpillar is eight or ten lines long, with the head of a light brown colour, and the body is yellowish-green, with black, longi-

tudinal stripes. Like other caterpillars, it may be destroyed by being dusted with white hellebore powder.

GARDENER. The day is gone when the spade and the blue apron were the only appropriate devices for the gardener. He must now not only have a thorough practical knowledge of his art, but he must also have an intimate acquaintance with its sciences. No man can have stored in his mind too much knowledge; but there are always some branches of information of more value than others. Of these, to the gardener, there are none so important as botany and chemistry—botany, physiological as well as classical—chemistry, especially as applied to the examination of organic nature. The relative duties between the gardener and his master are embodied in that universal rule—Do as you would be done by. The head gardener is the superior of the valet or butler; for his education and knowledge are of a higher order. The under gardeners, though necessarily hardy, and the open air is their appropriate whereabouts, should have work assigned to them suitable to the clemency or inclemency of the season; for no men are more liable to suffer early in life from rheumatism. There are two golden sentences which we would have always kept in mind by the gardener:—

1. Let all things be done orderly.
2. Be always ready to give an account of your stewardship.

GARDENER'S GARTER. *Phalaris*.

GARDE'NTA. (Named after *Dr. Garden*, an American. Nat. ord., *Cinchonads* [*Cinchonaceæ*]. Linn., 5-Pentandria 1-Monogynia.)

Sweet-scented evergreen shrubs. Cuttings of shoots half ripe, in sand, under glass, and in a moist bottom-heat. This moist heat, when growing and when starting into bloom, is the very life of all the stove species. Even the greenhouse kinds do best when pruned after flowering, grown rapidly afterwards; if in a moist atmosphere from decomposing material, such as dung and leaves, all the better; hardened off and ripened by exposure to light and air in autumn, rested in a cool and dryish atmosphere in winter, and started into bloom in a moist heat again, and then removed to the greenhouse; peat and loam. Summer temp., 60° to 85°; winter, 45° to 55°.

GREENHOUSE.

- G. amo'na* (pleasing). 4. Pink. July. China.
— *angustifo'lia* (narrow-leaved). 3. White. 1823.
— *flo'rida* (flowery). 5. Pale yellow. August. China. 1754.
— *Fortu'ni* (Fortune's double-flowered). 5. White. July. North China. 1844.
— *pie'na* (double-flowered). 5. Pale yellow. August. China. 1754.

- G. flo'rida simplici* (single-flowered). 5. White. January. E. Ind. 1831.
— *globo'sa* (globe-fruited). White. June. Caffraria.
— *rad'icens* (rooting). 1. White. June. China. 1804.
— *Rothma'nii* (Rothman's). 10. Pale yellow. July. Cape of Good Hope. 1774.
— *spino'sa* (spiny). 8. White. July. China. 1800.
— *Thunbe'rgii* (Thunberg's). 6. White. February. Cape of Good Hope. 1773.

STOVE.

- G. arma'ta* (armed). 10. White. July. W. Ind. 1813.
— *campanula'ta* (bell-flowered). E. Ind. 1815.
— *Devonia'na* (Duke of Devonshire's). 6. White. September. Sierra Leone. 1845.
— *dumeto'rum* (thicket). 6. White. July. E. Ind. 1777.
— *fra'grans* (fragrant). 4. White. E. Ind. 1820.
— *latifo'lia* (broad-leaved). 7. Pale yellow. E. Ind. 1787.
— *longisty'la* (long-styled). 6. Green, white. June. W. Africa. 1845.
— *lu'eida* (shining). 4. White. E. Ind. 1819.
— *metel'fera* (clapper-bearing). 5. Cream. Sierra Leone.
— *mont'a'na* (mountain). 8. White. E. Ind. 1819.
— *ni'tida* (shining-leaved). 3. White. October. Sierra Leone.
— *pave'tta* (pavetta-like). 6. White. July. E. Ind. 1817.
— *Sherbow'nia* (Mrs. Sherbourne's). 3. White, red. June. Sierra Leone. 1842. Climber.
— *Stanley'na* (Stanley's. Earl of Derby's). 6. White, spotted red. June. Sierra Leone. 1843.

GARDENING is the art of cultivating and arranging plants, so as to obtain from them the greatest amount of produce and of beauty.

GARDEN ROCAMBOLE. *Allium ophiosco'rodon*.

GARDEN SWIFT. (*Hepio'lus lupatinus*.) The caterpillar of this moth is more indiscriminate in its attacks upon our plants than any other ravager of the garden. The roots of the auriculas, snowdrops, bear's-ear, parsnips, lettuces, celery, potatoes, and strawberries, have all been observed destroyed by this larva. The moth, usually, is chalky-brown, head and thorax woolly, and its upper wings dark, bright brown, with a broad line of white; but sometimes this is absent, and at other times the upper wings are chalky-white. These moths appear about the end of May, and are very abundant in the evening in meadows and other grassy places. They deposit their eggs apparently without discrimination, which soon hatch, and the caterpillars produced are cylindrical, and yellowish-white, with black dots and hairs on the upper part and sides of their segments. The caterpillar changes to an ochreous, shining, cylindrical pupa.—*Gard. Chron.*

GARDO'QUIA. (Named after *Gardoqui*, a Spaniard. Nat. ord., *Labiates*, or *Lipworts* [*Lamiaceæ*]. Linn., 14-*Didynamia* 2-*Angiospermia*. Allied to *Melissa*.)

Of all the Lipworts, there is not a greenhouse rival to *G. Hooke'ri* when well grown. Greenhouse evergreens, except *G. betonicoides*, which is herbaceous. Cuttings of half-ripened shoots in June, in sand, under a hand-glass; peat and loam, with a fair portion of sand, and pieces of broken bricks and charcoal. Winter temp., 40° to 48°; a shady place in summer. They should be tried against a wall, with a slight protection in winter. *G. betonicoides* (betony-like). 3. Pink. October. Mexico. 1837.

- *discolor* (two-coloured). Purple. June. Chili. 1827.
- *Gilliesii* (Gillies's). 2. Lilac. June. Chili. 1828.
- *Hooke'ri* (Hooker's). 2. Scarlet. June. Carolina. 1832.
- *multiflora* (many-flowered). 1. Purple. April. Chili. 1837.

GARLAND FLOWER. *Pleura'ndra cneorum*.

GARLICK. (*Allium sativum*.) Grows best in a light, rich soil.

Planting.—It is generally propagated by parting the root, but may be raised from the bulbs produced on the stems. Plant any time in February, March, and early in April; but the middle of March is the usual time. A single clove to be placed in each hole, made six inches apart, and one deep, in straight lines, six inches distant from each other, care being taken to set the roots downwards. To do this, it is the best practice to thrust the finger and thumb, holding a clove between them, to the requisite depth without any previous hole being made. Keep them frequently hoed, and in June the leaves are to be tied in knots, to prevent the plants running to seed. A few roots may be taken up as required in June and July; but the whole must not be lifted until the leaves wither at the close of July, or in the course of August. It is usual to leave a part of the stalk attached, by which they are tied into bundles, being previously well dried for keeping during the winter.

GARLIC PEAR. *Cratæva*.

GARRYA. (Named after Mr. Garry, of the Hudson's Bay Company, who facilitated Douglas's botanical researches in North West America. Nat. ord., *Garryads* [*Garryaceæ*]. Linn., 21-*Monæcia* 4-*Tetrandria*.)

Hardy evergreen shrubs. Layers in the autumn, and cuttings toward the end of summer, in sandy soil, under a hand-light; sandy loam.

G. elliptica (oval-leaved). 6. Green. October. California. 1828.

G. laurifolia (laurel-leaved). 6. White. Mexico. 1839.

— *macrophylla* (large-leaved). 6. Green. Mexico. 1846.

— *Macfadyenia'na* (Mac Fadyen's). 6. Green. Jamaica. 1842.

GARU'GA. (Its East Indian name. Nat. ord., *Amyrids* [*Amyridaceæ*]. Linn., 10-*Decandria* 1-*Monogynia*. Allied to *Boswellia*.)

One of the frankincense-trees so celebrated in the East. Stove evergreen trees, with yellow flowers; cuttings of half-ripened shoots in sand, under a bell-glass, and set in a little bottom-heat; peat and loam. Summer temp., 60° to 80°; winter, 50° to 55°.

G. Madagascarie'nsis (Madagascar). 50. May. Madagascar. 1824.

— *pinna'ta* (leafleted). 60. E. Ind. 1808.

GAS-HEATING. If the flame is supplied with air by the aid of a small pipe communicating with the outside of the house, is enclosed in a small iron stove, and has the gases produced carried away by a pipe, gas may be employed for protecting greenhouse plants in winter. We have known a small greenhouse, 16 feet by 12, thus protected by a single Argand burner.

GASTE'RIA. (From *gaster*, a belly; alluding to the swollen base of the flowers. Nat. ord., *Lilyworts* [*Liliaceæ*]. Linn., 6-*Hexandria* 1-*Monogynia*.)

Greenhouse evergreens, from the Cape of Good Hope, and all with red flowers, except where otherwise specified. This genus ought to be united to *ALON*, which see for culture.

G. acinacifolia (scimitar-leaved). 3. Orange. July. 1819.

— *mi'nor* (smaller). 2. Scarlet. July. 1820.

— *angula'ta* (angled). 2. July. 1791.

— *mi'nor* (smaller). 1½. August. 1820.

— *angustifolia* (narrow-leaved). 1½. June. 1731.

— *longifolia* (long-leaved). 1½. July. 1796.

— *bi'color* (two-coloured). 1. 1824.

— *brevifolia* (short-leaved). 3. July. 1809.

— *pervi'ridis* (very green). 1½. Scarlet. July. 1820.

— *ca'ndicans* (rough-marble, white). 1. July. 1822.

— *curina'ta* (rough-keeled). 2. July. 1731.

— *conspure'ta* (dirtied). 2. June. 1796.

— *crassifolia* (thick-leaved). 1½. July. 1820.

— *deci'piens* (deceiving). 2. Scarlet. July. 1820.

— *di'sticha* (two-rowed). 2. Scarlet. July. 1820.

— *ma'jor* (larger). 2. Scarlet. July. 1820.

— *ensifolia* (sword-leaved). 1. July. 1823.

— *excava'ta* (excavated). 1½. 1824.

— *obli'qua* (twisted-leaved). 1½. July. 1759.

— *fascia'ta* (banded). 1½. July. 1820.

— *la'xa* (loose). 2. Scarlet. July. 1820.

— *forma'sa* (beautiful). 2. Scarlet. July. 1820.

— *glu'bra* (smooth-keeled). 3. July. 1796.

— *mi'nor* (smaller). 2. Scarlet. July. 1820.

— *interme'dia* (middle-tongued). 2. July. 1790.

— *aspe'rula* (roughest-leaved). 2. July. 1820.

— *la'bior* (smoother). 2. Scarlet. July. 1820.

— *longior* (longer-leaved). 2. Scarlet. July. 1820.

- G. latepunctata* (lively-spotted). 2. Scarlet. July. 1820.
 — *denticulata* (small-toothed). 2. Scarlet. July. 1822.
 — *laevis* (smooth). 1½. July. 1820.
 — *liniata* (smeared). 2. Scarlet. July. 1820.
 — *maculata* (spotted). 2. Scarlet. July. 1759.
 — *fulax* (fallacious). 2. Scarlet. July. 1820.
 — *molliis* (soft-muddy-leaved). 1. July. 1823.
 — *ni'gricans* (dark). 2. July. 1790.
 — *marmora'ta* (marbled). 1½. July. 1820.
 — *nitens* (shining). 2. Scarlet. July. 1820.
 — *bre'vior* (shorter-leaved). 2. Scarlet. July. 1820.
 — *nitida* (shining). 1. July. 1820.
 — *grandipunctata* (large-dotted). 1. July. 1822.
 — *obtu'sa* (blunt). 1½. July. 1820.
 — *obtusifolia* (blunt-leaved). 1½. July. 1796.
 — *pa'ra* (small). 2. Scarlet. July. 1820.
 — *picta* (painted). 3. Scarlet. July. 1820.
 — *pluripunctata* (many-dotted). 2. Scarlet. July. 1820.
 — *pu'chra* (fair). 3. Scarlet. July. 1759.
 — *repens* (creeping-rooted). 1. July. 1821.
 — *relata* (netted). 2. Scarlet. July. 1820.
 — *strigata* (rigid). 2. Scarlet. July. 1820.
 — *subcarinata* (obscure-keeled). 2. Orange. July. 1818.
 — *viridior* (greener). 2. Scarlet. July. 1820.
 — *subni'gricans* (blackish). 2. Scarlet. July. 1820.
 — *glabrior* (smoother). 2. Scarlet. July. 1826.
 — *subverrucosa* (small-warted). 2. July. 1820.
 — *parvipunctata* (small-dotted). 2. July. 1820.
 — *sulcata* (furrowed). 2. Scarlet. July. 1820.
 — *trigona* (triangular). 1½. July. 1820.
 — *undata* (waved). 2. Scarlet. July. 1820.
 — *venusta* (lovely). 2. Scarlet. July. 1820.
 — *verrucosa* (warty). 2. July. 1731.

GASTO'NIA. (After *Gaston de Bourbon*, son of *Henri IV.* of France. Nat. ord., *Ivyworts* [Araliaceæ]. Linn., 11-*Dodecandria* 5-*Pentagynia*. Allied to *Aralia*.)

Stove evergreen shrub. Cuttings of shoots getting firm, in April, in sand, under a bell-glass, and in bottom-heat; peat and loam. Summer temp., 55° to 75°; winter, 45° to 55°.

G. palmata (hand-leaved). 4. White, green. March. Chittagong. 1818.

GASTROCHI'LUS. (From *gaster*, belly, and *cheilos*, lip; in reference to the swollen lip. Nat. ord., *Gingerworts* [Zingiberaceæ]. Linn., 1-*Monandria* 1-*Monogynia*. Allied to *Alpinia*.)

Must not be confounded with *Don's Gastrochilus*, a synonyme of *Saccolabium*. Stove herbaceous perennials. Divisions of the plant as fresh growth is commencing; sandy loam. Summer temp., 60° to 80°; winter, 50° to 55°.

G. Jenkinsonii (Jenkins's). 2. Orange, crimson. June. E. Ind. 1841.

— *longistylus* (long-flowered). 2. Yellow, red. July. E. Ind. 1843.

— *pulcherrimus* (prettiest). 2. Yellow, pink. August. Rangoon. 1828.

GASTROLO'BUM. (From *gaster*, belly, and *lobes*, a pod; inflated seed-pod. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 10-*Decandria* 1-*Monogynia*. Allied to *Eutaxia*.)

Greenhouse evergreens, from *Swan River*, and all with yellow flowers, except where otherwise mentioned. Seeds sown in a hotbed in spring, after being soaked in warm water; cuttings of half-ripened shoots in May, in sand, under a bell-glass; peat and loam, both fibry, with a portion of silver sand, and small pieces of charcoal; impatient of sour, stagnant soil. Winter temp., 40° to 45°.

G. acutum (sharp-pointed). 1½. Yellow, red. March. 1842.

— *bilobum* (two-lobed). 2. May. 1803.

— *calycinum* (large-calyxed). April.

— *cordatum* (heart-shaped-leaved). May. 1841.

— *epacrioides* (epacris-like). 1847.

— *obovatum* (reversed-egg-leaved). April.

— *oxylobioides* (oxylobium-like). April. 1840.

— *retusum* (blunt-leaved). 1½. Orange, scarlet. May. 1830.

— *spathulatum* (spathulate-leaved).

— *spinosum* (spined). 3. April. 1840.

— *trilobum* (three-lobed-leaved).

— *villosum* (shaggy). 3. Red, crimson. May. 1845.

GASTRONE'MA. (From *gaster*, belly, and *nema*, a filament; in reference to the filaments seen below the point of insertion. Nat. ord., *Amarylloids* [Amarylloideæ]. Linn., 6-*Hexandria* 1-*Monogynia*. Allied to *Cyrtanthus*.)

Dr. Burchell discovered the pretty bulb, *clavatum*, and flowered it in an open border along with other Cape rarities; but we believe the plant is not to be had now in Europe; its native place at the Cape is in "fields beyond *Cantours* river." Offsets; sandy loam, fibry peat, and dried leaf-mould; plenty of water when growing, and dry when at rest. Winter temp., from 35° to 45°; or in border, protected in winter.

G. clavatum (club-leaved). ½. White. May. Cape of Good Hope. 1816.

— *sanguineum* (blood-red). ½. Deep rose. June. Caffraria. 1845.

GATEN or GATER-TREE. *Corrus sanguinea*.

GATHERER. The hand is the best instrument for collecting fruit into the basket; but to avoid the danger and breakage of branches incidental to using long ladders, the following instruments

No. 1.



No. 2.



have been designed. No. 1 for apples and other single fruit; No. 2 for grapes, the stalk of which it severs and retains in its grasp.

GATHERING. See FRUIT-ROOM.

GAUDICHAU'DIA. (Named after *C. Gaudichaud*, a French naturalist. Nat. ord., *Malpighiaceæ*]. Linn., 5-*Pentandria* 1-*Monogynia*.)

Stove evergreen. Cuttings of ripe shoots in summer, in sand, under a bell-glass, and in bottom-heat; peat and loam, with sand, and pieces of charcoal to keep it open. Summer temp., 60° to 75°; winter, 50° to 55°.

G. cynanchoides (dog's-bane-like). 10. Yellow. Mexico. 1824.

GAULTHERIA. (Named after *Dr. Gaultier*, a Canadian. Nat. ord., *Heathworts* [*Ericaceæ*]. Linn., 10-*Decandria* 1-*Monogynia*. Allied to *Pernetia*.)

The oil of Wintergreens used to flavour drugs, and also by perfumers, is obtained from the berries of *G. procumbens*. Chiefly by layers and seeds. *Procumbens* requires a moist peat-soil; *Shallon* will grow in any soil. The fruit is prized for its flavour so much by the natives, that they make it into bread for winter use. The greenhouse kinds require peat, and similar treatment, with the exception of a temperature from 35° to 45° in winter.

HARDY.

G. procumbens (procumbent). ♀. White. July. N. Amer. 1762.

— *Shallon* (Shallon). 4. White. May. N. Amer. 1826.

GREENHOUSE.

G. antipoda (antipodal). 6. White. New Zealand. 1820.

— *bracteata* (bracted). Red. July. Columbia. 1843.

— *cordata* (heart-leaved). White. May. Japan.

— *ferruginea* (rusty). Pink. June. Brazil. 1852.

— *fragrans* (fragrant). 6. Purple, red. Nepaul. 1824.

GAU'RA. (From *gauros*, superb; referring to the beauty of some of the species. Nat. ord., *Onagraceæ*]. Linn., 8-*Octandria* 1-*Monogynia*. Allied to *Stenosiphon*.)

G. fruticosa may be propagated either by seeds or cuttings; the others—annuals, biennials, and perennials—are all hardy, and may also be sown in April, and the perennials may also be divided. Sandy, rich loam suits them all.

G. angustifolia (narrow-leaved). 2. Pink. August. Perennial.

— *biennis* (biennial). 5. Red, white. September. N. Amer. 1762.

— *coccinea* (scarlet). ♀. Scarlet. September. Louisiana. 1811. Perennial.

— *fruticosa* (shrubby). 3. Red, white. S. N. Amer. 1815. Stove evergreen.

— *mutabilis* (changeable). 2. Yellow. July. N. Amer. 1795. Biennial.

— *anotheræfolia* (anothera-leaved). 1½. Purple. July. S. Amer. 1816. Biennial.

— *parviflora* (small-flowered). 4. Yellow. August. N. Amer. 1835. Biennial.

— *sinuata* (twisted). Blush. July. N. Amer. 1826. Biennial.

— *tripe'tala* (three-petaled). 1½. Pink. August. Mexico. 1804. Annual.

GAYLUSSA'CIA. (Named after *M. Gay Lussac*, a celebrated French chemist.

Nat. ord., *Cranberries* [*Vacciniaceæ*]. Linn., 10-*Decandria* 1-*Monogynia*. Allied to *Vaccinium*.)

Cranberry-like half-hardy evergreens. Seed and layers; sandy peat, a little loam, and leaf-mould; require the protection of a pit or the greenhouse in winter.

G. pseudovaccinium (bilberry-like). 1½. Rose, red. May. Brazil. 1843.

— *rosea* (rosy-flowered). Rose. May. Peru. 1843.

GAZA'NIA. (From *gaza*, richness; in reference to the large, gaudy flowers. Nat. ord., *Composites* [*Asteraceæ*]. Linn., 19-*Syngenesia* 3-*Frustranea*. Allied to *Gorteria*.)

Natives of Cape of Good Hope. Cuttings of side-shoots, produced in abundance near the base of the plant, in August; more sparingly in spring, in sandy soil, under a hand-light; peat and loam, with a portion of sand. Winter temp., 35° to 45°.

GREENHOUSE EVERGREENS.

G. rigens (stiff). 1. Orange. June. 1755.

— *uniflora* (one-flowered). 1. Yellow. July. 1816.

GREENHOUSE HERBACEOUS.

G. heterophylla (variable-leaved). ♀. Orange. July. 1812.

— *pavo'nia* (peacock). 1½. Yellow. July. 1804.

— *subulata* (awl-leaved). 1. Yellow. July. 1792.

GEISSOME'RIA. (From *geisson*, a tile, and *meris*, a part; referring to the way the bractes are imbricated, or fall over each other as tiles on a roof. Nat. ord., *Acanthads* [*Acanthaceæ*]. Linn., 14-*Didynamia* 2-*Angiospermia*. Allied to *Barleria*.)

Stove evergreen shrubs. Cuttings of shoots getting firm, any time in summer, in sand, under a bell-glass, and a sweet bottom-heat; loam and peat, with sand, and a little old cow-dung.

G. aurantiaca (orange-coloured). 2. Orange, red. Autumn. 1848.

— *fulgida* (brilliant). Scarlet. August. W. Ind. 1804.

— *longiflora* (long-flowered). 3. Scarlet. July. Brazil. 1826.

GEISSORH'ZA. Tile Root. (From *geisson*, a tile, and *rhiza*, a root; referring to the dry coats which cover the fleshy roots like tiles on a roof. Nat. ord., *Irids* [*Iridaceæ*]. Linn., 3-*Triandria* 1-*Monogynia*. Allied to *Trichonema*.)

Half-hardy bulbs, from Cape of Good Hope. Except when planted out on a border, in front of a greenhouse, the roots should be planted in a handful of white sand; offsets; sandy peat, with a little loam; must be kept from the frost in winter.

G. ciliaris (hair-fringed). 1. May.

— *erecta* (upright). Yellow, blue. May. 1824.

— *erecta* (abrupt-leaved). ♀. White. May. 1789.

— *hirta* (hairy). 1. White. May. 1825.

— *humilis* (humble). Yellow, rose. May. 1822.

— *imbricata* (imbricated). 1. Variegated. May. 1825.

— *juncæa* (rush-like). 1. White. July. 1822.

G. Larochei (De la Roche's). 3. Violet. May. 1790.

— *obtusata* (blunted). 1. Yellow. May. 1801.

— *secundata* (side-flowering). 1. White. May. 1795.

— *albescens* (whitish). 1. White. May. 1795.

— *caerulea* (blue). 1. Blue. May. 1795.

— *setacea* (bristle-leaved). 1. Sulphur. July. 1809.

— *subultea* (yellowish). 1. Yellow. May. 1825.

— *vaginulata* (sheathed). 1½. Yellow, blue. May. 1824.

GE'LA. (From *geleo*, to shine; referring to the surface of the leaves. Nat. ord., *Rueworts* [Rutacæ]. Linn., 8-*Oc-tandria* 1-*Monogynia*.)

Greenhouse evergreen shrubs. Cuttings of half-ripened shoots in May, under a hand-light, in sandy soil; sandy peat. Winter temp., 38° to 45°.

G. lanceolata (spear-head-leaved). 4. Yellow. Cochinchina. 1820.

— *oblongifolia* (oblong-leaved). 6. White, green. June. N. Holland. 1823.

GELASI'NE. (From *gelasinos*, a smiling dimple; referring to the flowers of these pretty bulbs. Nat. ord., *Irids* [Iridacæ]. Linn., 3-*Triandria* 1-*Monogynia*. Allied to *Trichonema*.)

A bulb, from the Rio Grande in South America, almost, if not altogether, hardy; but we fear it has been lost at the dispersion of Dr. Herbert's collection, who had dry specimens of five more species of *Gelasine*. Nuttall's *Nemostylis* is the nearest genus to it; but *Trichonema*, so well known, will give a good idea of it; light, sandy soil suits them best; they seed freely, and seedlings flower the second season from the sowing, and, like most *Irids*, they increase by offset-bulbs.

G. azurea (blue). 1. Blue. May. S. Amer. 1839.

GENET'YLLIS. (From *genetyllis*, protective of birth; alluding to the form and position of the flowers. Nat. ord., *Myrtle-blooms* [Myrtacæ]. Linn., 12-*Icosandria* 1-*Monogynia*.)

Greenhouse evergreens. Cultivated like the *Myrtle*.

G. tulipifera (tulip-bearing). 2½. Straw, crimson. April. Swan River. 1854.

— *macrostegia* (large-involucered). 2. Crimson. May. Western Australia. 1854.

GENI'PA. Genip-tree. (From *Genepapa*, the native name. Nat. ord., *Cinchonads* [Cinchonacæ]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Gardenia*.)

The Genipap, a South American fruit, is produced by *G. Americana*; it is as large as an orange, and much esteemed. Stove evergreen trees. Cuttings of shoots just getting a little firm, in May, in sand, under a bell-glass, and in bottom-heat; peat and loam, with a little sand and cow-dung. Summer temp., 60° to 80°; winter, 45° to 50°.

G. Americana (American). 30. Pale yellow. S. Amer. 1779.

— *edulis* (eatable). 30. White. Guiana. 1824.

— *esculentia* (eatable). 20. China. 1823.

— *Meriana* (Merian's). 10. White. Cayenne. 1800.

— *oblongifolia* (oblong-leaved). 20. Yellow. Peru. 1821.

GENI'STA. (From the Celtic, *gen*, a small bush. Nat. ord., *Leguminous Plants* [Fabacæ]. Linn., 16-*Monadelphia* 6-*Decandria*. Allied to *Spartium*.)

Low shrubs, all with yellow flowers, good for making quickly an ornamental appearance in a shrubbery. The greenhouse and half-hardy kinds like peat and loam, with a little sand and leaf-mould, and are propagated by cuttings of the young shoots in summer, in sand, under a bell-glass. The hardy kinds are easily propagated by seed, and the most rare by cuttings under a hand-light, after April, in a shady place. Whatever plan is adopted, they should be frequently transplanted, or at once removed to their position in the shrubbery, as they make long, naked roots. *Canariensis* is about the best of the greenhouse ones, and that in a dry place requires only a little protection out of doors. *Lusitanica* and *radiata* look interesting, even in winter, when the leaves are gone. *Angelica* is the rough-looking spring dwarf-bush that blooms so freely in our moist moors. *Tinctoria* is used in all its parts for producing a yellow dye; and on a rock-work, or on the top of a mound, with its branches allowed to creep downwards, few things in spring and the beginning of summer are more splendid than the trailing *triquetru*, and its next-door neighbour, *triangularis*. Common, loamy soil suits all the hardy ones.

GREENHOUSE DECIDUOUS.

G. congesta (close-branched). 4. June. Tenerife.

— *monosperma* (single-seeded). 4. July. South Europe. 1690.

— *sphaerocarpa* (round-podded). 4. July. South Europe. 1731.

GREENHOUSE EVERGREENS.

G. bracteolata (small-bracted). 2. May. 1823.

— *Canariensis* (Canary). 2. June. Canaries. 1659.

— *clavata* (club-leaved). 3. June. Mogadore. 1812.

— *ferox* (fierce). 1½. July. Barbary. 1800.

— *linifolia* (flax-leaved). 3. June. Spain. 1739.

— *Spachiana* (Spach's). 2. Canaries.

— *umbellata* (umbelled). 3. June. Barbary. 1799.

HARDY DECIDUOUS.

G. aphylla (leafless). 4. Violet. July. Siberia. 1800.

— *humifusa* (trailing). 1. July. France. 1819. Trailer.

— *scorpis* (scorpion). 4. April. South Europe. 1570.

— *tetragona* (four-angled-branched). 1. July. Podolia. 1822. Trailer.

— *virgata* (long-twigged). 5. June. Madeira. 1777.

HARDY EVERGREENS.

G. Æthnensis (Etna). 3. July. Sicily. 1816.

— *Anglica* (English. *Pettywhin*). 2. July. Britain.

— *angulata* (angled). 3. June. Maryland. 1739.

— *Anxantica* (Anxantic). 4. July. Italy. 1818.

— *caudicans* (whitish). 2. May. Spain. 1735.

— *cinelea* (greyish). 4. July. South Europe.

— *decumbens* (decumbent). ½. June. Burgundy. 1775. Trailer.

— *diffusa* (spreading). 3. June. Hungary. 1816.

— *florida* (flowery). 6. July. Spain. 1752.

— *Germanica* (German). 2. July. Germany. 1773.

— *ineermis* (nearly-unarmed). 2. July. Germany.

— *Hispanica* (Spanish). 2. July. Spain. 1759.

- G. ho'rrida* (horrid). 3. July. Pyrenees. 1821.
 — *Ita'lica* (Italian). 3. July. Italy.
 — *Lusita'nica* (Portuguese). 2. May. Portugal. 1771.
 — *Ma'nica* (Mantic). 3. July. South Europe. 1816.
 — *ova'ta* (egg-leaved). 3. July. Hungary. 1816.
 — *parvifl'ora* (small-flowered). 3. July. South Europe. 1817.
 — *pa'tens* (spreading). 2. June. Spain.
 — *pu'tula* (wide-open). 3. July. Caucasus. 1818.
 — *pilo'sa* (downy. *Green weed*). 6. June. England.
 — *polygalaefol'ia* (polygala-leaved). 3. July. Spain. 1820.
 — *procu'mbens* (lying-down). 1½. July. Hungary. 1816. Trailer.
 — *radi'ata* (rayed). 1½. July. Italy. 1758.
 — *sagitta'tis* (arrow-jointed). ½. June. Germany. 1570.
 — — *mi'nor* (less). May. Trailer.
 — *scario'sa* (membranous). 6. July. Italy. 1821.
 — *seri'cea* (silky). 3. June. Austria. 1812.
 — *Sibi'rica* (Siberian). 2. July. Siberia. 1785.
 — *silve'stris* (wood). 2. July. Hungary. 1818.
 — *tincto'ria* (dyer's. *Green weed*). 3. July. Britain.
 — — *flo're-ple'no* (double-flowered). 2. July.
 — — *hirsu'ta* (somewhat hairy). 2. July. Britain.
 — — *latifo'lia* (broad-leaved). 2. July. Auvergne. 1824.
 — — *prat'ensis* (meadow). 2. July. Italy.
 — — *triaca'nthos* (three-spined). 2. July. Spain.
 — — *interru'pta* (interrupted). 2. May. Tanguier.
 — *triangula'ris* (three-angled-stemmed). 2. June. Hungary. 1815.
 — *trique'tra* (three-cornered-stemmed). 3. June. Corsica. 1770.

GENTIA'NA. *Gentian.* (Named after *Gentius*, king of Illyria, who first experienced the virtue of *Gentian*. Nat. ord., *Gentianworts* [*Gentianaceæ*]. Linn., 5-*Pentandria* 2-*Digynia*.)

The root of *G. lu'tea* is the true *Gentian* of the druggists, an intense bitter, only exceeded by that of *Ale'tris farino'sa*, a little North American Bloodroot, the most intense bitter known, and by *Qua'ssia ama'ra*. The smaller kinds may be treated as alpine; and whether grown in pots or not, a little heat and sandy leaf-mould should be given them. All may be propagated by seed sown as soon as ripe; the perennials, also, by division in spring. Some of the creeping, low-growing kinds, as *acau'tis*, make nice edgings to walks and borders.

HARDY ANNUALS.

- G. amore'lla* (amarella). ½. Purple. August. Britain.
 — — *lu'tea* (yellow). ½. Yellow. August.
 — *angustifo'lia* (narrow-leaved). ½. Purple. July. N. Amer. 1812.
 — *Carinthi'aca* (Carinthian). ½. Blue. August. Switzerland. 1817.
 — *Germa'nica* (German). ½. Blue. August. Germany. 1818.
 — *glacia'tis* (icy). ½. Blue. July. Alps. 1819.
 — *hu'milis* (humble). ½. Purple. April. Caucasus. 1824.
 — *niva'lis* (snowy). ½. Blue. August. Scotland.
 — *obtusifo'lia* (blunt-leaved). ½. Yellow. July. Switzerland. 1826.
 — *prat'ensis* (meadow). ½. Blue. July. Siberia. 1817.

HARDY BIENNIALS.

- G. ba.ba'ta* (bearded). ½. Blue. August. Siberia. 1764.
 — *Cauca'sica* (Caucasian). ½. Violet. July. Caucasus. 1804.
 — *confe'рта* (crowded). Blue. August. Altaia. 1827.
 — *crini'ta* (long-haired). ½. Blue. July. N. Amer. 1804.
 — *uligino'sa* (marshy). Blue. August. Germany. 1827.
 — *uniflo'ra* (one-flowered). Violet. July. Carpathian Mountains. 1828.

HARDY HERBACEOUS PERENNIALS.

- G. asi'tica* (summer). ½. Blue. July. Austria. 1818.
 — *acau'tis* (stemless. *Gentianella*). ½. Blue. May. Wales.
 — *angustifo'lia* (narrow-leaved). ½. Blue. May. Alps. 1819.
 — *adscen'dens* (ascending). ½. Blue. July. Siberia. 1799.
 — — *decu'mbens* (decumbent). ½. Blue. June. Siberia. 1799.
 — *a'lgida* (cold). ½. White. July. Siberia. 1808.
 — *alpi'na* (alpine). ½. Blue. July. Alps. 1817.
 — *Alta'ica* (Altaic). 1. Purple. May. Siberia. 1824.
 — *angulo'sa* (angled). ½. Purple. Altai. 1824.
 — *asclepi'a'dea* (swallowwort-like). 1. Blue. July. Austria. 1629.
 — — *ma'jor* (greater). 2. Blue. July.
 — — *ochroleu'ca* (yellowish-white). 1. Cream. July.
 — *au'rea* (golden). ½. Yellow. August. Norway. 1823.
 — *Bava'rica* (Bavarian). ½. Blue. July. Germany. 1775.
 — *bilo'ba* (two-lobed). 2½. Yellow. July. Alps. 1820.
 — *Burse'ri* (Bursar's). 2. Yellow. July. Pyrenees. 1820.
 — *campanula'ta* (bell-flowered). 2. Sulphur. July. Switzerland. 1819.
 — *Catesba'ta* (Catesby's). 1½. Blue. July. N. Amer. 1803.
 — *cilia'ta* (hair-fringed). ½. Blue. Germany. 1759.
 — *clava'ta* (studded). ½. Blue. 1820.
 — *crucia'ta* (crossed). 1. Dark blue. July. Austria. 1596.
 — *fimbria'ta* (fringed). ½. Blue. August. Caucasus. 1818.
 — *Fortu'ni* (Mr. Fortune's). Lilac. Siberia.
 — *fr'i'gida* (frigid). ½. White. July. Syria. 1817.
 — *Ge'bleri* (Gebler's). Blue. August. Russia. 1832.
 — *ge'lida* (ice-cold). 1. Blue. July. Siberia. 1807.
 — *hy'bri'da* (hybrid). 2½. Yellow, purple. July. Switzerland. 1817.
 — *imbrica'ta* (imbricated). ½. Blue. July. Switzerland. 1819.
 — *incarna'ta* (flesh-coloured). 2. Pink. September. N. Amer. 1812.
 — *interme'dia* (intermediate). 2. Purple. September. N. Amer. 1820.
 — *linea'ris* (narrow-leaved). 1. Blue. August. Carolina. 1816.
 — *lu'tea* (yellow). 4. Yellow. July. Alps. 1596.
 — *macrophy'lla* (large-leaved). 1. Blue. July. Siberia. 1796.
 — *ochroleu'ca* (cream-flowered). 2. Yellowish. N. Amer. 1803.
 — *Panno'nica* (Pannonian). 1. Purple. July. Alps.
 — *plebe'ia* (vulgar). ½. Dark blue. July. Germany. 1834.
 — *pneumona'nthe* (wind-flower). ½. Blue. August. England.
 — — *flo're-a'l'ba* (white-flowered). ½. White, green. August. Germany. 1834.

- G. pneumonanthe gutta'ta* (spotted). $\frac{1}{2}$. Blue. August.
 — *pseudopneumonanthæ* (bastard-wind-flower). $\frac{1}{2}$. Blue. August. N. Amer. 1800.
 — *pumila* (dwarf). $\frac{1}{2}$. Blue. May. Switzerland. 1817.
 — *punctata* (spotted-flowered). 3. Yellow. July. Alps. 1775.
 — *purpurea* (purple). 3. Blue. July. Alps. 1768.
 — *flo're-al'bo* (white-flowered). 2. White. July. European Alps. 1823.
 — *Pyrena'ica* (Pyrenean). $\frac{1}{2}$. Blue. July. Pyrenees. 1825.
 — *quinqueflo'ra* (five-flowered). $\frac{1}{2}$. Blue. August. N. Amer. 1821.
 — *saponaria* (soapwort-leaved). 2. Blue. August. N. Amer. 1776.
 — *flo're-al'bo* (white-flowered). $\frac{1}{2}$. White. September. N. Amer. 1826.
 — *septemfida* (seven-cleft). $\frac{3}{4}$. Blue. July. Persia. 1804.
 — *gutta'ta* (spotted). $\frac{1}{2}$. Blue. June. Levant. 1804.
 — *Caucasica* (Caucasian). Blue. August. Caucasus.
 — *triflo'ra* (three-flowered). $\frac{1}{2}$. Blue. July. Siberia. 1807.
 — *umbellata* (umbelled). $\frac{3}{4}$. Purple. June. Caucasus. 1823.
 — *utriculosa* (bladdery). $\frac{1}{2}$. Purple. April. South Europe. 1822.
 — *verna* (spring). $\frac{1}{2}$. Blue. May. England.
 — *flo're-al'bo* (white-flowered). $\frac{1}{2}$. White. April.

GEOFFROYA. Bastard Cabbage-tree. (Named after *Dr. Geoffroy*, of Paris, author of "Materia Medica." Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 17-Diadelphia 4-Pentagynia. Allied to *Andira*.)

Stove evergreen trees. Cuttings of ripened shoots in sand, in peat, and under a bell-glass; peat and loam. Summer temp., 60° to 75°; winter, 45° to 55°.

- G. Bredemeyeri* (Bredemeyer's). Yellow. July. Caraccas. 1824.
 — *spino'sa* (spined). 30. Yellow. S. Amer. 1818.
 — *violacea* (violet). 20. Violet. Guiana. 1823.

GEOMETRA. The *Amphidasis* and *Hybernaria* of some entomologists is a genus of moths including *G. polsaria*, Pale Brindled Beauty-Moth, which appears in March; eggs deposited in bands round a twig, as done by the Lackey-Moth. Caterpillars appear with the opening leaves of the elm, lime, lilac, and apple-tree. They are, at first, a light green.

G. defoliaria, Lime-Looper, or Mottled Umbre-Moth, feeds on the leaves of the lime and apple. Moth appears in November. Caterpillar reddish, with a bright yellow stripe on each side. Female moth has no wings, so that a piece of cloth dipped in tar, and bound round a tree's stem, prevents its ascent.

G. piniaria attacks the pine and fir tree.

GEONOMA. (From *geonomos*, skilled in

agriculture; as much as to say that only a skilful planter could increase these palms. Nat. ord., *Palms* [Palmaceæ]. Linn., 22-Diæcia 6-Hexandria. Allied to *Borassus*.)

Stove palms. Seed; rich, sandy loam. Summer temp., 60° to 80°; winter, 55° to 60°.

- G. acapul'ia* (stemless). 5. Brazil. 1823.
 — *corallifera* (coral-bearing). $\frac{5}{8}$. Red.
 — *macrostachys* (large-spiked). 5. Brazil. 1828.
 — *pinna'tifrons* (leaflet-leaved). 15. Caraccas. 1821.
 — *Schottia'na* (Schott's). Brazil. 1820.
 — *simpli'cifrons* (simple-leaved). 5. Trinidad. 1818.
 — *Spixia'na* (Spix's). 15. Brazil. 1824.

GEORGINA. Attempts were made some years since to substitute this name for that of *Dahlia*; but the law of priority settles the question. *Dahlia* was named by the Spanish botanist Cavanilles in 1791; and neither Willdenow nor Sprengel's *Georgina* appeared for more than eighty years subsequently.

GERA'NIUM. See **PELARGO'NIUM.**

GERA'NIUM. Crane's Bill. (From *geranos*, a crane; referring to the beak-like torus, or projection beyond the seeds. Nat. ord., *Cranesbills* [Geraniaceæ]. Linn., 16-Monadelphia 6-Decandria.)

A very few require the pit or greenhouse in winter, and these should have equal portions of peat, loam, leaf-mould, and sand. Almost all are hardy, and flourish in common ground; many grow under the shade of trees and hedges, and thus secure a portion of vegetable earth. There are worse things than the common weed *Robertianum* for twining itself round the sides of a rustic basket, or crawling over a rock-work. The following are a few of the best for gardens:—*Mexicanum*, *rubifolium*, *sanguineum*, *Lancastrie'nse*, *Wallichianum*, *pratense* *flo're-pleno*, *Dahuricum*, *pilosum*, and *cristatum*. There is hardly an annual worth sowing.

HALF-HARDY HERBACEOUS.

- G. aconitifolium* (aconite-leaved). $\frac{1}{2}$. White. June. Switzerland. 1775.
 — *argenteum* (silvery-leaved). $\frac{1}{2}$. Striped. July. South Europe. 1699.
 — *canescens* (hoary). $\frac{1}{2}$. Pink. June. Cape of Good Hope. 1787.
 — *incanum* (hoary-many-cleft). $\frac{1}{2}$. Pink. June. Cape of Good Hope. 1701.
 — *Mexicanum* (Mexican). 1. Pale purple. August. Mexico. 1832.

HARDY ANNUALS.

- G. lanuginosum* (woolly). Rose. July. N. Amer. 1817.
 — *pa'llens* (pale). Pale. June. Iberia. 1827.

HARDY HERBACEOUS.

- G. affi'ne* (related). 1. Blue. June. Altaia. 1832.
 — *albiflorum* (white-flowered). $\frac{1}{2}$. Whitish. July. N. Amer. 1827.
 — *Altaicum* (Altaic). $\frac{1}{2}$. Pale red. July. Altaia. 1818.
 — *anemonifolium* (anemone-leaved). 3. Red. August. Madeira. 1788. Greenhouse evergreen.

- G. angulatum* (angular-stalked). 1. Purple. June. 1789.
 — *asphodeloides* (asphodel-like). Levant. 1823.
 — *batrachiodes* (batrachium-like). 1. Blue. July. Europe. 1817.
 — *cæruleum* (blue). 1. Blue. July. Dahuria. 1824.
 — *cine'reum* (grey). 1. Red. August. Pyrenees.
 — *collinum* (hill). 1. Purple. July. Siberia. 1815.
 — *cristatum* (crested). 1½. Red. July. Iberia. 1820.
 — *Dahuricum* (Dahurian). 1. Purple. June. Dahuria. 1820.
 — *eria'nthum* (woolly-flowered). 2. Crimson. June. California. 1839.
 — *erioste'mon* (woolly-stemmed). 1½. Blue. July. Siberia. 1822.
 — — *pal'lidum* (pale). 1½. Pale blue. August. Nepal. 1822.
 — *ful'scum* (brown). 1½. Brown. July. South Europe. 1759.
 — *gymnocaul'on* (naked-stemmed). 1. Blue. July. Iberia. 1814.
 — *Ibe'ricum* (Iberian). 1½. Blue. July. Levant. 1802.
 — *Lamberti* (Lambert's). 1½. Red. July. Nepal. 1824.
 — *Lancastrie'nse* (Lancaster). 2. Striped. June. Britain. Trailer.
 — *longipes* (long-stalked). 1. Lilac. July. 1823.
 — *lu'cidum* (shining). ½. Pink. June. Britain.
 — *mucrorh'izum* (large-rooted). 1½. Purple. June. Italy. 1876.
 — *macula'tum* (spotted). 2. Purple. July. N. Amer. 1732.
 — *multifidum* (much-cut). 1. Red. August. Cape of Good Hope. 1817.
 — *memoro'sum* (grove). 1. Purple. July. Italy. 1821.
 — *Nepale'nse* (Nepalese). ½. Red. June. Nepal. 1818.
 — *palu'stre* (marsh). 2. Purple. July. Germany. 1732.
 — *parviflorum* (small-flowered). 2. Purple. June. Van Diemen's Land. 1816.
 — *phæum* (dusky). 1½. Black. May. England.
 — *pilo'sum* (shaggy). 3. Purple. July. New Zealand. 1821.
 — *pratense* (meadow. *Crowfoot-leaved*). 1½. Blue. June. Britain.
 — — *flo're-al'bo* (white-flowered). 1½. White. June. Britain.
 — — *flo're-al'bo-plé'no* (double-white-flowered). 2. White. May. Britain.
 — — *flo're-plé'no* (double-flowered). 2. Blue. June. Scotland.
 — — *flo're-variegata* (variegated-flowered). 1½. Variegated. July. Britain.
 — *Pyrena'icum* (Pyrenean). 1. Purple. June. Britain.
 — *refle'sum* (bent-back-flowered). 1½. Red. July. Italy. 1758.
 — *Robertia'nium* (herb Robert). 1. Red. April. Britain.
 — — *flo're-al'bo* (white-flowered). 1. White. April. Britain.
 — *rubifolium* (bramble-leaved). 1. Pink. July. Himalayas. 1839.
 — *sangu'neum* (bloody). 1. Crimson. July. Britain.
 — — *villosi'stimum* (hairiest). ½. Blood. July. Europe. Trailer.
 — *Sibi'ricum* (Siberian). 1. White. July. Siberia. 1758.
 — *striat'um* (channelled). 1. Striped. August. Italy. 1629.

- G. tuberosum* (tuberose-rooted). 1. Pink. July. Italy. 1596.
 — — *ramo'sum* (branching). 1. Purple. July. South Europe.
 — *umbro'sum* (shaded). 1. Purple. July. Hungary. 1804.
 — *Vlassonia'nium* (Vlassov's). 1. Red. July. Crimea. 1821.
 — *Wallichia'nium* (Wallich's). 2. Striped. July. Nepaul. 1819.

GERARDIA. (Named after Gerard, the English herbalist. Nat. ord., *Figworts* [*Scrophulariaceæ*]. Linn., 14-*Didynamia* 2-*Angiospermia*.)

All but *delphinifolia* from North America. Annuals, biennials, and perennials by seed, in sandy peat; perennials and biennials also by cuttings in sandy peat, under a hand-light; such as *quercifolia*, by divisions in spring; sandy, fibry loam, if peat is not to be had; the stove species requires similar treatment, but extra heat.

STOVE HERBACEOUS.

- G. delphinifolia* (larkspur-leaved). 2. Pink. July. E. Ind. 1800.

HARDY ANNUALS AND BIENNIALS.

- G. aphy'lla* (leafless-stemmed). 3. Rose. July. 1834. Annual.
 — *maritima* (sea-side). 2. Yellow. July. 1823.
 — *pedicula'ria* (pedicularis-like). Yellow. June. 1826.
 — *purpurea* (purple). 1½. Purple. July. 1772.
 — *tenuifolia* (slender-leaved). 1. Purple. July. 1812.

HARDY HERBACEOUS.

- G. fla'na* (yellow). 1½. Yellow. July. 1796.
 — *quercifolia* (oak-leaved). 1. Yellow. July. 1812.

GERBERA. (Named after Gerber, a German naturalist. Nat. ord., *Composites* [*Asteracæ*]. Linn., 19-*Syngenesia* 2-*Superflua*.)

A greenhouse biennial; seeds or cuttings of the side-shoots, and preserved over the winter; sandy loam and a little peat. Winter temp., 40° to 45°.

- G. crenata* (scollop-leaved). ½. Purple. July. Cape of Good Hope. 1822.

GERMAN CATCHFLY. *Viscaria vulga'ris*. GERMANDER. *Teu'crium*.

GERMINATION is the sprouting or first step in vegetation of a seed. To enable it to germinate it must have a perfectly-developed embryo, and be ripe, or nearly ripe. It must not be too old, and there must be present a certain degree of heat, moisture, and oxygen gas, the latter being furnished by the air.

GEROPO'GON. Old Man's Beard. (From *geron*, old man, and *pogon*, a beard; referring to the hair-like pappus which crowns the calyx in this order. Nat. ord., *Composites* [*Asteracæ*]. Linn., 19-*Syngenesia* 1-*Æqualis*. Allied to *Scorzonera*.)

Hardy plants, from Italy. Annuals by seed in April, in common soil; perennial by seed and division of the plant in spring.

G. calyculatus (large-calyled). 2. Pink. July. 1774. Perennial.

— *glaber* (smooth). 1½. Pink. July. 1704.

— *hirsutus* (hairy). 1½. Red. July. 1759.

GE'SNERA. (Named after *Conrad Gesner*, a celebrated botanist of Zurich. Nat. ord., *Gesnerworts* [Gesneraceæ]. Linn., 14-*Didymia* 2-*Angiospermia*. Allied to *Gloxinia*.)

A most interesting family of plants, that, by regulating their rest period, may be brought into bloom at almost any time. All scarlet-flowered, except where otherwise stated.

G. acaulis (stemless). 1. June. Jamaica. 1793.

— *aggregata* (aggregate). 3. June. Brazil. 1816.

— *alagophylla* (shifting-leaved). 1½. Orange.

July. Brazil. 1834.

— *Arnoldi* (Arnold's). 1. July. Brazil. 1841.

— *breviflora* (short-flowered). 1. Red. August.

1847.

— *bulbosa* (bulbous). 2. June. Brazil. 1816.

— *calycina* (large-calyled). 1½. Jamaica.

— *Caraccasana* (Caraccas). 2. July. Caraccas.

1842.

— *Cooperi* (Mr. Cooper's). 2. May. Brazil. 1829.

— *cordata* (heart-leaved). ¾. Pale scarlet. July.

— *corymbosa* (corymb). 2. July. Jamaica. 1822.

— *digitalis* (foxglove-like). June. Brazil. 1842.

— *discolor* (two-coloured). Red, yellow. Sep-

tember. S. Amer. 1843.

— *Douglasii* (Douglas's). 1½. Red, yellow.

September.

Rio Janeiro. 1826.

— *verticillata* (whorled-flowered). 2. Crim-

son. May. Rio Janeiro. 1835.

— *elliptica* (oval).

— *lutæa* (yellow-flowered). 1. Yellow. May.

Santa Martha. 1844.

— *elongata* (elongated). 2. Scarlet. Septem-

ber. S. Amer. 1835.

— *fruticosa* (shrubby). 2. August.

— *fruticosa* (wide-mouthed). 2. July. Brazil. 1833.

— *Gardneri* (Gardner's). 2. Red. July. Brazil.

1841.

— *Gerardina* (Gerard's). 2. Red, yellow.

September. S. Amer. 1843.

— *hirsuta* (hairy). 1. July. Cumana. 1826.

— *Hondensis* (Honda). 1. Red, yellow. May.

Brazil. 1845.

— *humilis* (humble). ¾. Cuba.

— *lasiantha* (woolly-flowered). 3. Autumn.

Mexico.

— *lateritia* (brick-red). 2. July. Brazil. 1834.

— *latifolia* (broad-leaved). August. Caraccas.

1839.

— *Libanensis* (Lebanon. *Many-flowered*). ¾.

June. Cuba. 1847.

— *Lindleyi* (Lindley's). Scarlet, yellow. July.

Brazil. 1825.

— *longifolia* (long-leaved). 2. Red. June.

Guatemala. 1841.

— *macrantha* (large-flowered). Purplish.

— *purpurea* (purple-flowered). ¾. August.

1847.

— *macrostachya* (large-spiked). Rio Janeiro.

1825.

— *magnifica* (magnificent). August.

— *oblongata* (oblong). Crimson. April. S.

Amer. 1830.

— *pardina* (leopard-spotted). 1½. Orange, red-

spotted. August. Brazil. 1847.

— *pendulina* (drooping-flowered). 2. June.

S. Amer. 1825.

— *polyantha* (many-flowered). 2. June. Brazil.

1839.

G. reflexa (bent-back). April. Valparaiso. 1937.

— *rupestris* (rock-inhabiting). ¾. August. 1895.

— *rupicola* (rock). ¾. May. Brazil. 1835.

— *rutilla* (brilliant). 2. Scarlet, yellow. Au-

gust. Brazil. 1825.

— *atro-sanguinea* (dark red). 2. Crimson.

August. Brazil. 1826.

— *scabra* (rough). 1. July. Jamaica. 1820.

— *scelptum* (sculpted). 4. July. Brazil. 1836.

— *igneus* (fiery). ¾. Reddish-yellow. Sep-

tember. Brazil. 1835.

— *Schiedia* (Schiede's). 1½. July. Mexico.

1844.

— *Sellowii* (Sellow's). 2. July. Brazil. 1835.

— *spicata* (spiked). Grenada. 1831.

— *stricta* (upright). 5. July. Brazil. 1835.

— *Suttonii* (Captain Sutton's). 2. July. Rio

Janeiro. 1833.

— *alba* (white). July. Brazil. 1840.

— *triflora* (three-flowered). 2. Yellow, red.

July. New Grenada. 1846.

— *tuberosa* (tuberous). ¾. Autumn. Brazil. 1834.

— *tubiflora* (tube-flowered). 2. March. S.

Amer. 1815.

— *vestita* (clothed). 1½. Orange. July. Bo-

gota. 1842.

— *zebrina* (zebra-striped). 2. Scarlet, yellow.

September. Brazil. 1840.

Propagation: by Cuttings.—They may be propagated by cuttings of three kinds. 1st, the young shoots, as soon as they are three inches long, springing from the old tubers (these are the best); 2nd, leaves taken off with a bud at the base; and 3rd, by the leaves only, without buds. The first mode may be used when the kind or variety is plentiful, and the bulbs so strong as to send out more shoots than are wanted for flowering; the second mode, when the variety is new and more scarce; and the last when it is more rare still. There is an advantage in the first and second mode, that the cuttings, if struck early in the year, will, with moderate care and attention to re-potting, flower the same year; whereas those struck from leaves, or parts of leaves, will only form small tubers that season. Each kind of cutting requires to be put in sand, under bell or hand-glasses, in bottom-heat, to strike them quickly. A moist, warm heat is necessary; a moist, cold place would rot the cuttings immediately. Such species as do not make bulbs must be propagated by the first kind of cuttings.

By Seed.—To raise new varieties it is necessary to save seed. Choose the finest and brightest-coloured to save it from. As soon as it is ripe, gather it and dry it; keep it very dry till the March following; then sow the seed on the surface of a light, sandy compost, place it in a warm, moist atmosphere, and as soon as the seedlings are up, and the plants have

attained a leaf or two, transplant them thinly on the surface of shallow pots, and let them grow there during the summer. Allow them to go to rest in the autumn, and keep them in the same pots through the winter, giving but little water. As soon as life appears again in the spring, pot them off singly into small pots, watering and re-potting the same as the cuttings; but it is more than probable they will not flower till the second year.

Soil.—Light, fibrous loam, turfy peat, and half-decayed leaves, in equal parts, with a due portion of sand, well-mixed, but not sifted.

Summer Culture.—To have a succession of bloom, pot a portion of the bulbs in January, and place them in heat, giving a little water. Temp., 60° to 80°. Pot a second batch about the middle of February, and another towards the end of March. These will supply flowers for several months. Put them in pots, according to the size of the bulbs; keep them regularly watered, but never very wet. They may be syringed occasionally previously to flowering, but not much; for the leaves are so woolly that they hold moisture too long, if syringed severely. When the blooming season is over they may be set out of doors during summer, but should be sheltered from heavy rains. They will then gradually go to rest.

Winter Culture.—All that they require is to be kept in their pots in a place where neither frost nor wet can reach them; yet the place should never be below 45°, nor above 55°. If the cold is much lower they will be apt to rot; and if higher, to start into growth.

Diseases.—The only disease that these plants are subject to is a kind of dry rot in the bulbs, which changes the substance into a soft pulp, destroying the buds, and so causing them to perish. There is no cure for it.

GETHY'LIS. (From *getheo*, to rejoice; referring to the sweetness of the flowers of some of them. Nat. ord., *Amaryllids* [Amaryllidaceæ]. Linn., 6-*Hexandria* 1-*Monogynia*. Allied to *Sternbergia*.)

Here the Amaryllids reach their minimum stature; *G. cilia'ris*, if not the smallest, is as dwarf as any in the order. There are only three of them in cultivation: *A'fra*, *cilia'ris*, and *spira'lis*. Greenhouse bulbs, from the Cape of Good Hope, with white flowers. Offsets and seeds; sandy loam and peat; kept nearly dry in winter. Winter temp., 35° to 45°.

G. A'fra (African). ½. July. 1820.
— *cilia'ris* (hair-fringed). ½. July. 1788.
— *lanceolata* (spear-head-leaved). 3. July. 1790.
— *spira'lis* (spiral-leaved). ¾. July. 1780.
— *villo'sa* (shaggy). ¾. July. 1787.

GETO'NIA. (Probably the native name. Nat. ord., *Myrobalans* [Combretaceæ]. Linn., 10-*Decandria* 1-*Monogynia*. Allied to *Terminalia*.)

Stove evergreen climbers. Cuttings of ripened shoots in sand, under a glass, in bottom-heat; sandy peat and fibry loam. Summer temp., 60° to 80°; winter, 50° to 55°.

G. floribunda (bundle-flowered). 6. Yellow, green. E. Ind. 1815.
— *nutans* (noddng). 6. E. Ind. 1816.

GE'UM. Aven. (From *geyo*, to stimulate; the roots of some of them, and of allied species, have the same properties as Peruvian bark. Nat. ord., *Roseworts* [Rosaceæ]. Linn., 12-*Icosandria* 3-*Polygynia*. Allied to *Potentilla*.)

Hardy herbaceous perennials. *Coccineum* is very showy. Seeds, and dividing the plants in spring; sandy loam, with a little leaf-mould.

G. agrimonioi'des (agrimony-like). 1½. White. July. N. Amer. 1811.

— *al'bum* (white). 1. White. July. N. Amer. 1730.

— *Atl'nticum* (Atlantic). 1. Yellow. July. South Europe. 1810.

— *brachypetalum* (short-petaled). 1. Yellow. July. 1818.

— *Canad'ense* (Canadian). 1½. Yellow. July. Canada. 1810.

— *Chile'ense* (Chili). 2. Copper. July. Chili. 1826.

— *atro-sanguineum* (dark-blood-coloured). 2. Dark blood.

— *grandiflorum* (large-flowered). 1½. Scarlet. July.

— *cilia'tum* (hair-fringed). 1. Yellow. July. N. Amer. 1818.

— *heterophyllum* (various-leaved). 2. White. July. 1816.

— *hybridum* (hybrid). 1. Red, brown. July. Europe.

— *intermedium* (intermediate). 1½. Yellow. July. Volhinia. 1794.

— *macrophyllum* (large-leaved). 2. Yellow. July. Kamtschatka. 1804.

— *nivale al'bum* (snowy-white). White. June. Amer. 1823.

— *Portenschlagianum* (Portenschlag's). 1½. Yellow. July. 1820.

— *Pyrenaicum* (Pyrenean). 1½. Yellow. July. Pyrenees. 1804.

— *radia'tum* (radiated). 1. Yellow. July. N. Amer. 1815.

— *ranunculoi'des* (ranunculus-like). 1. Yellow. July. 1823.

— *rotundifolium* (round-leaved). 1. Yellow. July. Russia. 1820.

— *stri'ctum* (upright). 1. Striped. June. N. Amer. 1778.

— *Virginianum* (Virginian). 1½. White. July. N. Amer.

GIANT FENNEL. *Fe'rule*.

GI'LIA. (Named after *Gilio*, a Spanish botanist. Nat. ord., *Phloxworts* [Pole-

moniaceæ]. Linn., 5-Pentandria 1-Monogynia.)

Hardy annuals, except *G. aggregata*. Sown in September, and slightly protected during winter, they bloom early in the summer; sow in the end of March in open border; common soil. The greenhouse biennial, sown in August, potted, and kept over the winter, will bloom freely the following summer.

- G. achilleaefolia* (milfoil-leaved). 1½. Pink. August. California. 1833.
- *aggregata* (crowded). Scarlet. July. America. 1822. Greenhouse biennial.
- *arena'ria* (sand-inhabiting). 1. Blue. June. California. 1833.
- *capitata* (round-headed). 2½. Blue. July. Columbia. 1826.
- — *euro'lia alba* (white-corollaed). 2. White. June. Gardens. 1829.
- *coronopifolia* (coronopus-leaved). 2½. Scarlet. July. Carolina. 1726.
- *crassifolia* (thick-leaved). 2. Yellowish. June. Chili. 1832.
- *gracilis* (slender). ½. Pink. July. N. Amer. 1826.
- *inconspicua* (inconspicuous). 2. Blue. August. N. Amer. 1793.
- *lacinia'ta* (cut-leaved). ½. Purple. July. Chili. 1831.
- *liniflora* (flax-flowered). ½. White. June. California. 1833.
- *lut'ea* (yellow). Yellow. 2. California. 1852.
- *multicaulis* (many-stemmed). 2. Blue. California. 1833.
- *parviflora* (small-flowered). 2. Blue. October. America. 1793.
- *pharnaceoides* (pharnaceum-like). ½. White. June. California. 1833.
- *puleh'la* (pretty). 2½. Scarlet. July. Northwest America. 1826.
- *pu'ngens* (prickly). 1½. Pink. July. N. Amer. 1827.
- *pusi'la* (dwarf). ½. June. Chili. 1833.
- *tenuiflora* (thin-flowered). 2. Rose, violet. August. California.
- *tricolor* (three-coloured). 1. Purple, orange. August. California. 1833.
- — *floribundus albican'tibus* (whitish-flowered). ½. White. July. California. 1833.

GILIBERTIA. (Named after *Gilibert*, a German botanist. Nat. ord., *Ivyworts* [Araliaceæ]. Linn., 5-Pentandria 1-Monogynia. Allied to *Cussonia*.)

Stove evergreen shrub. Cuttings of the young shoots in sand, under a bell-glass, and in heat; sandy peat and fibry loam. Summer temp., 60° to 80°; winter, 48° to 55°.

G. palma'ta (hand-leaved). 6. White. March. E. Ind. 1818.

GILLE'NIA. (Named after one *Gillenius*. Nat. ord., *Roseworts* [Rosaceæ]. Linn., 12-Icosandria 2-Pentagynia. Allied to *Spiræa*.)

Hardy herbaceous perennials, with red and white flowers, from North America. Division of the plant; common soil.

- G. stipula'cea* (large-stipuled). 2. July. 1805.
- *trifolia'ta* (three-leaved). 2. July. 1713.
- — *ma'jor* (greater). 3. July.

GILLYFLOWER. *Matthiola inca'na*.

GINGER. (*Zingiber officina'le*.) Green ginger may be easily cultivated two ways, either in pots, or in a deep pit. If in pots, take the plants, shake them out of the pots when at rest in February, divide them, and pot each piece into a pot six inches across; plunge them, as soon as the heat is temperate, in a bark-pit, or a frame heated with dung like a cucumber-bed, the surface being covered with tan deep enough for the pots. As soon as the plants come up give a small supply of water, gradually increasing the quantity as the plants advance in growth. By August they will be fit to take up and preserve. If a large quantity is required, a deep pit of two or three lights will be necessary, the bottom to be filled with rich soil to the depth of a foot; plant the roots in this soil, and line the pit with hot dung, renewing it as the heat declines. The time for planting in the pit is February or March. Water whilst growing, give air in hot weather, and in September you will have a large supply of fine ginger-roots, equal to foreign.

GINGERBREAD-TREE. *Parinari'um macrophyllum*.

GLADI'OLUS. Corn Flag. (From *gladius*, a sword; referring to the shape of the leaves. Nat. ord., *Irids* [Iridaceæ]. Linn., 3-Triandria 1-Monogynia.)

Bulbs, from the Cape of Good Hope, except where otherwise mentioned. The hardiest merely require border-room, and are propagated by seeds, and by taking up and dividing the bulbs before growth has commenced. Those generally designated frame and greenhouse species will thrive very well in dry, sandy loam and peat out of doors, if planted from six to ten inches deep, according to the strength of the bulbs. The earliest-flowering, such as *bla'ndus*, &c., may be planted in the end of October; *rumo'sus*, *formosissimus*, &c., in December; and *Gundue'nsis*, *floribundus*, *psittac'ius*, and *splendens* from February to March, when they will keep blooming all the autumn. The whole make fine pot plants, potted in autumn and spring, and kept in a cold pit until they show flower. They may also be forced for the greenhouse after the roots have filled the pots.

G. æquinoctia'lis (equinoctial). April. Sierra Leone. 1842.

— *alatus* (wing-flowered). 2. Scarlet, yellow. June. 1795.

— — *Algoe'nsis* (Algoa Bay). 2. Orange. July. 1824.

— *albidus* (whitish). 1. White. June. 1774.

— — *pictus* (painted). 1. Red, white. July. 1794.

— *angustus* (narrow-leaved). 2. Yellow. June. 1756.

— *bla'ndus* (fair). 1½. Flesh. June. 1774.

— *brevifolius* (short-leaved). 1½. Pink. June. 1802.

- G. Byzanti'us* (Byzantine). 2. Red. July. Turkey. 1629.
 — *campanulatus* (bell-flowered). 1½. Light purple. May. 1794.
 — *cardinalis* (cardinal). 2. Red. July. 1789.
 — *carneus* (flesh-coloured). 2. Flesh. June. 1796.
 — *Caucasicus* (Caucasian). Caucasus. 1842.
 — *cochleatus* (spoon-tipped). 1½. White, red. March. 1829.
 — *communis* (common). 2. Red. July. South Europe. 1596.
 — — *albus* (white-flowered). 2. White. June. South Europe.
 — — *carneus* (flesh-coloured). 1½. Flesh. July. South Europe. 1596.
 — *concolor* (one-coloured). 1. Yellow. June. 1790.
 — *crispiflorus* (curled-flowered). Various. July. 1842.
 — *cuspidatus* (pointed). 1½. White, brown. May. 1795.
 — *debilis* (weak). 1½. White. May.
 — *edulis* (eatable-rooted). 1½. White. June. 1816.
 — *festivus* (festive). Pale rose. July. 1844.
 — *flexuosus* (zigzag). 1. Orange. June. 1825.
 — *floribundus* (bundle-flowered). 1. Citron. July. 1788.
 — *gracilis* (slender). 2. Blue, white. April. 1800.
 — *hastatus* (halbert-shaped). 1. Flesh. May. 1816.
 — *hirsutus* (hairy). 1½. Pink. June. 1795.
 — *hyalinus* (grass-like). 1. Yellow, red. June. 1825.
 — *imbricatus* (imbricated). 1. Red. June. Russia. 1820.
 — *involutus* (rolled-inward). 1½. Pink. June. 1757.
 — *Milleri* (Miller's). 1½. Violet. May. 1751.
 — *Mortonius* (Morton's). 1½. White. 1837.
 — *Namaquensis* (Namaqua). 2. Orange. June. 1800.
 — *Natalensis* (Natal). 4. Scarlet, yellow. August. Natal River. 1830.
 — *oppositiflorus* (opposite-flowered). April. Madagascar. 1843.
 — *permeabilis* (penetrable). 2. Orange. June. 1825.
 — *ramosus* (branching). 5. Rose. July. 1838.
 — *recurvus* (rolled-back). 2. Striped. May. 1758.
 — *segetum* (corn-field). 2. Purple. July. South Europe. 1596.
 — *tenuellus* (tender). 2. Yellow. June. 1825.
 — *tenuis* (slender). 1. Red. June. Tauria. 1823.
 — *trichonemifolius* (trichonema-leaved). 1½. Yellow. June. 1800.
 — *trimaculatus* (three-spotted). 1. Red, white. June. 1794.
 — *tristis* (sad). 1. Brown, red. July. 1745.
 — *undulatus* (waved-flowered). 1. Pink. May. 1760.
 — — *pallidus* (pale). 1. Pink. May. 1760.
 — *versicolor* (various-coloured). 1½. Brown. June. 1794.
 — — *bine'vus* (two-nerved). 1½. Pink. June. 1806.
 — — *tenuior* (slenderer). 1. Variegated. June. 1779.
 — *viperatus* (viper-like). ½. Green, white. May. 1787.
 — *Watsonius* (Watson's). 1. Red. March. 1791.
 — — *variegatus* (variegated). 1½. Red, white. April. 1801.

Propagation: by Offsets.—The offsets are produced plentifully round the base

of each bulb. When the bulbs are taken up, separate the flowering bulbs from the offsets, and then again divide the latter into two lots, one of the larger roots and one of the smaller. Towards the end of August prepare a bed for them in an open situation, and drain the ground well if damp. Place a layer of brick-rubbish under the soil, not less than a foot deep, and not more than fifteen inches; upon the drainage place a layer of stable-litter, then throw in the soil, mixing it freely with well-decomposed manure; let it settle about a fortnight, then plant the larger offsets in one bed and the smaller ones in another; the larger sized four inches apart in the row, six inches from row to row, and three inches deep. Plant by drawing drills across the beds with a triangular-shaped hoe, and put in the bulbs with the hand, pressing each pretty firmly down into the soil. When all are planted, level the soil with a rake. The small-sized offsets may be planted much thicker, but in every other respect the same as the larger sized. The reason for planting them in two sizes is, because the larger sized produce such large leaves as smother the smaller ones; besides, the larger sized will produce, after one year's growth, flowering bulbs, which, when taken up after the growth is perfected, may be sorted to plant with the older flowering ones. The smaller size had better remain in the bed for two years, then be taken up, sorted, and replanted in two sizes again, till they are large enough to flower.

By Seed new varieties are obtained. All that is wanted are a few square yards of ground, a few roots of the best kinds, but as dissimilar in habit as possible, and then, when in bloom, to exercise a little taste and discernment in hybridising, by impregnating the finest form as the breeder of seed, with the pollen of the highest and most distinct coloured male parent, removing the pollen of the breeder before it bursts, and applying the pollen of the male parent as soon as the anthers open. When the seed is ripe gather it, and keep it dry till spring; then sow it in shallow pots or boxes; place them in a gentle heat, and when the seedlings are up give plenty of air, and very moderate supplies of water. As soon as the weather will permit, set them in the open air, and as the leaves advance in size give

more water, and allow gentle showers to fall upon them, but shelter them from heavy rain. When the leaves are all decayed, take the soil and carefully sift it through a fine sieve, picking out every bulb, however small. Prepare a bed in the same manner, and of the same materials, as is described above for offsets. Plant the seedling bulbs in it the first week in September, in the same way as the small offsets. Let them remain in this bed for two years; then take them and replant them in a bed fresh prepared. It is likely that some of the strongest will then flower, and the very worst will be worth planting in the borders.

Summer Culture.—The bulbs want very little attention during summer. Keep them clear of weeds, and when the flower-stems are a foot high place a stick to support them, as the winds are apt to twist them off close to the bulbs. When the bloom is over, and the leaves turn yellow, take them up dry, and sort them, separating the bulbs that are large enough to flower from the offsets; put them away in drawers marked with the name of each variety, keeping them dry and cool till the planting season arrives again.

Winter Culture.—In September prepare the beds by throwing out all the soil to the depth of fifteen inches; if in the same situation as beds were before, examine the drainage. If it is open and ready to work well, it will need nothing doing to it, but if it be choked up, remove it entirely; sift it, throwing in the rough, and removing the fine earthy part; add some fresh rubble, and then cover it with litter; mix a goodly portion of thoroughly decayed dung with the soil, or, which is better, renew it entirely; level the bed, leaving it a few inches higher. Plant the first week in October, three inches deep, giving each of the bulbs six inches square to grow in. Place a thin layer of half-rotten dung upon the bed, to protect the bulbs in severe frost. They will require no other care during this season.

Vermin.—Mice, wireworms, and the red spider prey upon them. *Wireworms* may be caught with slices of potatoes buried in the soil, and taken up occasionally. The *red spider*, happily, only appears when there is a long continuance of dry weather. Watch for its first appearance, and as soon as it is perceived causing the leaves to appear spotted, let every leaf be sprinkled over with water impregnated

with flower of sulphur. If dry weather prevails much, syringe the plants every evening severely.

Diseases.—The bulbs sometimes are attacked by a kind of dry rot, which turns them into a powdery substance, prevents them sending forth roots, and then the tops, if they have made any, turn yellow, and the whole plant perishes. There is no known remedy. To prevent its spreading, remove the infected bulbs, and a portion of the soil near them.

GLASS is the best agent employed by the gardener to exclude the cold, whilst the light is admitted to his plants which are natives of hotter climates than that in which he cultivates them. Now that the excise-duty is removed from glass, the gardener is enabled to employ the best, and a thicker kind than formerly, when the duty was high in proportion to the good quality and weight. Anxiety to obtain the best glass for hothouses, &c., is every way laudable; but the benefit sought for is frustrated if it be not constantly well cleansed. The best glass, if dirty, allows fewer rays of light to pass through than inferior glass kept bright. A thorough cleansing should be given both to the outside and inside twice annually, during the first weeks of February and of October, and a third cleansing, on the outside only, at the end of June. In proportion to the deficiency of light does the plant under glass become, in the gardener's phraseology, *drawn*; that is, its surface of leaves becomes unnaturally extended, in the vain effort to have a sufficient elaboration of the sap effected by means of a large surface exposed to a diminished light, for which a less surface would have been sufficient if the light were more intense. Taking into consideration the consequences of breakage, and other contingencies to be avoided as well as secured, we consider glass of 21 ounces to the square foot, and in panes of 18 inches by 12 inches, the substance and size most desirable. Rough plate-glass is desirable, because, without diminishing the light, it reduces the danger of scorching the leaves.

GLASS CASES are of various kinds. One is formed of glazed wooden frames, fitting together, to protect espaliers, wall-trees, or shrubs, too large to be covered with a hand-glass.

Another glass case is made for protecting a single branch. It is thus described

by Mr. Maund, the author of that most useful periodical the *Botanic Garden* :—

"Grapes grown on open walls in the midland counties are rarely well ripened; therefore I provide a small glazed frame, a sort of narrow hand-glass, of the shape shown in the annexed outline, to fix against the wall, and enclose one branch of the vine, with its fruit and foliage. The open part, which rests against the wall, is thirteen inches wide, and may be of any length required to take in the fruit. The sides are formed of single panes of glass, seven



inches wide, and meet on a bar which may represent the ridge of a roof, the ends enclosed by triangular boards, and having a notch to admit the branch. This is fixed on the branch a month before the vine is in flower, and brings it a week earlier than the exposed. The frame is not fitted closely to the wall, but in some places may be a quarter of an inch from it. The lateral branches being shortened before it is fixed, it does not require removal even for pruning, because I adopt the long-rod mode of training, which is peculiarly adapted to my *partial protection system*. The temperature within the frame is always higher than without, sometimes at mid-day even from 20° to 30°. By this simple protection I find grapes may be ripened from three weeks to a month earlier than when wholly exposed, and this saving of time will, I believe, not only secure their ripening well every year in the midland counties, but also that such advantage will be available in the north of England, where grapes never ripen on the open walls."



Lastly, there is the *Wardian-case*, to

cover plants growing in rooms, preserving to them uniform moisture, and excluding dust. To prevent the dew which is occasionally deposited inside the glass, it is only necessary to open the case frequently, for a few minutes, to render the temperature within similar to that outside. They are not intended to exclude the air, and are now made very ornamental.

GLASTONBURY THORN. A variety of *Crataegus oxyacantha*.

GLASSWORT. *Salicornia*.

GLAU'CUM. Horn Poppy. (From *glaukos*, greyish-green; referring to the colour of the leaves. Nat. ord., *Poppyworts* [Papaveraceæ]. Linn., 13-*Polyandria* 1-*Monogynia*. Allied to *Eschscholtzia*.)

Seeds in common borders, in March or April.

HARDY BIENNIALS.

G. flavum (yellow). 2. Yellow. August. Britain.
— *fulvum* (tawny). 2. Orange. August. South Europe. 1802.

HARDY ANNUALS.

G. Arabicum (Arabian). Red. June. Arabia. 1837.
— *Persicum* (Persian). 1. Red. August. Volhynia. 1829.
— *phæniceum* (purple). 2. Purple. July. England.
— — *flaviflorum* (yellow-flowered). 2. Yellow. July. Tauria. 1823.
— *rubrum* (red). 1. Red. July. Greece. 1818.
— *tricolor* (three-coloured). 1. Red. July. Persia. 1828.

GLAU'COUS. Greyish, or milky-green.

GLAU'X. (From *glaukos*, greyish-green. Nat. ord., *Primeworts* [Primulaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Soldanella*.)

Hardy British perennial trailers, found in marshes near the sea. Sandy, moist soil; seeds.

G. maritima (sea). Flesh. June.
— — *alba* (white-flowered). 4. White. May.

GLAZING. See GREENHOUSE and STOVE.

GLECHO'MA. See NEPE'TA.

GLEDI'TSCHIA. (Named after *Gleditsch*, a German botanist. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 23-*Polygamia* 2-*Diœcia*. Allied to *Cerantonia*.)

Ornamental hardy deciduous trees. Seed imported from America and the South of France, where *tricusanthos*, &c., ripen their seeds. *Sinensis incrimis*, &c., are generally grafted on the other. The seed should be sown in March, after being soaked twelve hours in warm water. Common soil.

G. horrida (horrid). 10. Green. July. China. 1774.
— — *purpurea* (purple). 20. Green. July. China. 1774.

— *macrantha* (large-spined). 20. Green. July.
— *micranthos* (small-spined). 10. Green. July.
— *monosperma* (one-seeded). 20. Green. July. N. Amer. 1723.

— *Sinensis* (Chinese). 20. Green. China. 1812.

- G. Sine'nsis ine'rmiss* (unarmed). 20. Green. June.
 — — — *ma'jor* (larger). 30. Green. June. China.
 — — — *na'na* (dwarf). 12. Green. June. China.
 — — — *pe'ndula* (weeping). Green. June.
 — — — *trica'nthos* (three-spined. *Honey Locust*). 30.
 Green. N. Amer. 1700.
 — — — *ine'rmiss* (unarmed). 30. Green. July.

GLEICHE'NIA. (Named after *Gleichen*, a German botanist. Nat. ord., *Ferns* [Polypodiaceæ]. Linn., 24-*Cryptogamia* 1-*Filices*.)

Stove Ferns, with brown spores. Division of the plant; peat and loam. Winter temp., 45° to 65°.

- G. bifurca'ta* (two-forked). May. Malacca.
 — — — *exce'lsa* (lofty). May. Isle of Luzon.
 — — — *flabella'ta* (fan-leaved). July. N. Holland. 1823.
 — — — *giganta'a* (gigantic). June. E. Ind.
 — — — *Herma'nmi* (Hermann's). Isle of Luzon. 1839
 — — — *microphy'lla* (small-leaved). July. N. Holland. 1823.
 — — — *mucrona'ta* (sharp-pointed). Mindora.
 — — — *pectina'ta* (comb-like). 3. August. Trinidad. 1824.
 — — — *pube'scens* (downy). 3. August. S. Amer. 1822.
 — — — *ri'gida* (stiff). June. Isle of Luzon. 1839.
 — — — *semivesti'ta* (half-clothed). May. Malacca.
 — — — *spelu'næa* (cavern). July. N. Holland. 1824.

GLO'BBA. (A native name. Nat. ord., *Gingerworts* [Zingiberaceæ]. Linn., 1-*Monandria* 1-*Monogynia*. Allied to *Colebrookia*.)

Stove herbaceous plants. Parting the roots; sandy loam.

- G. bulbi'fera* (bulb-producing). 2. Yellow. July. E. Ind. 1820.
 — — — *Careya's* (Dr. Carey's). 1½. Yellow. August. Pegu. 1822.
 — — — *ere'cta* (upright). 1. White. July. E. Ind. 1820.
 — — — *Maranti'na* (Maranta-like). 1½. Yellow. July. E. Ind. 1800.
 — — — *Orix'e'nsis* (Orixian). 2. Pink. July. E. Ind. 1819.
 — — — *pe'ndula* (weeping). 1. Yellow. July. E. Ind. 1822.
 — — — *racemo'sa* (racemed). 1. Yellow. July. Ceylon. 1812.
 — — — *sessili'fo'ra* (stalkless-flowered). 1½. Yellow. August. Pegu. 1807.

GLOBE AMARANTH. *Gomphre'na*.

GLOBE FLOWER. *Tro'llius*.

GLOBE MALLOW. *Spha'rulcea*.

GLOBE THISTLE. *Echi'nops*.

GLOBULA'RIA. (From *globulos*, a small round head; referring to the flower-heads. Nat. ord., *Selagids* [Selaginaceæ]. Linn., 4-*Tetrandria* 1-*Monogynia*. Allied to *Selago*.)

Seeds in spring; cuttings of young shoots in summer, in sandy soil, under a hand-light; sandy loam and peat. The greenhouse species require similar treatment; *longifo'lia* will do against a conservative wall; and *Aly'pum* should be tried in a dry, sheltered place, on a rock-work, with a spruce-branch over it in winter.

GREENHOUSE HERBACEOUS.

- G. Aly'pum* (Alypo). 2. Pale. August. South Europe. 1640.
 — — — *integrifo'lium* (entire-leaved). 2. Pale. August. South Europe.

- G. longifo'lia* (long-leaved). 3. White. July. Madeira. 1776.

HARDY HERBACEOUS.

- G. bellidifo'lia* (daisy-leaved). ½. Red. July. Italy. 1825.
 — — — *cordifo'lia* (heart-leaved). ½. Blue. July. Germany. 1833.
 — — — *incane'scens* (hoary). Purple. June. Italy. 1828.
 — — — *linifo'lia* (flax-leaved). ½. Blue. June. Spain. 1818.
 — — — *na'na* (dwarf). ½. Blue. July. France. 1824.
 — — — *nudica'u'lis* (naked-stalked). ½. Blue. July. Germany. 1629.
 — — — *spino'sa* (prickly-leaved). ½. Blue. June. Spain. 1640.
 — — — *vulga'ris* (common). ½. Blue. June. Europe. 1640.

GLOBU'LEA. (From *globulos*, a small globe; referring to glands on the petals. Nat. ord., *Houseleeks* [Crassulaceæ]. Linn., 5-*Pentandria* 5-*Pentagynia*. Allied to *Crassula*.)

Greenhouse succulents, from the Cape of Good Hope, and with white flowers, except *a'tro-purpu'rea*. Cuttings of firmish young shoots, taken off and dried for a day or two before inserting them in sandy soil, and placing a hand-light over them, but not close. Sandy loam, a little peat, charcoal, and brick-rubbish, in small pieces, the dust being sifted out. Winter temp., 40° to 48°, and little water given them.

- G. a'tro-purpu'rea* (dark purple). ½. Purple. August. 1823.
 — — — *came'scens* (hoary). ½. July. 1800.
 — — — *capita'ta* (flower-headed). ½. July. 1819.
 — — — *culta'ra* (sharp-leaved). 1. July. 1732.
 — — — *hi'spida* (bristly-flat-leaved). ½. November. 1828.
 — — — *impre'ssu* (flattened). ½. August. 1820.
 — — — *mi'nor* (smaller). ½. August. 1820.
 — — — *mo'llis* (soft). 1. August. 1774.
 — — — *nudica'u'lis* (naked-stemmed). ½. July. 1732.
 — — — *obovalla'ta* (guarded-leaved). ½. July. 1795.
 — — — *panicula'ta* (panicked). ½. July. 1823.
 — — — *sulca'ta* (furrowed). ½. August. 1813.

GLORIO'SA. (From *gloriosus*, glorious; referring to the flowers. Nat. ord., *Lilyworts* [Liliaceæ]. Linn., 6-*Hexandria* 1-*Monogynia*. Allied to the *Lily*.)

These bulbs are so well known by this name, that we have retained it; but *Clinostylis* is the true name, referring to the way the style bends to one side away from the stamens. Stove bulbs, except *Nepale'nsis*. Divisions of the roots and seeds; if by the former, take a pot that has been kept dry all the winter, say in March, turn it out, and separate the bulbs carefully, without bruising them. Place each bulb, with the end farthest from the old tuber, uppermost in the centre of a clean pot, covering it with an inch or two of soil, the pot being five or ten inches, or any intermediate size, in diameter, according to the size of the bulb; peat, loam, leaf-mould, old cow-dung, and sand in equal proportions, with good drainage. Give no water until the bud appears above ground, then water and place in a strong, moist heat, growing vigorously, and training as the plant proceeds. When done flowering, and the leaves turn yellow, refrain from watering, and shortly after turn the plants on their broadsides in a dry place, and allow them to rest until next season.

- G. Nepale'nsis* (Nepaul). 2. Yellow. June. Nepaul. 1825. Half-hardy.

- G. simplex* (simple). 2. Blue. July. Senegal. 1756.
 — *superba* (superb). 6. Orange. July. E. Ind. 1690.
 — *Leopoldina* (King Leopold's). 6. Yellow. July. 1847.
 — *viridescens* (greenish). 4. Orange. August. Mozambique. 1823.

GLORY PEA. *Cliaanthus*.

GLOSSOCOMIA. (From *glossokomos*, a money-bag; referring to the shape of the flower. Nat. ord., *Bellworts* [*Campanulaceæ*]. Linn., 5-Pentandria 1-Monogynia. Allied to *Canarina*.)

Hardy herbaceous plants. Seeds and divisions; common garden-soil.

- G. ovata* (egg-leaved). 1½. White. July. 1839. North India.
 — *lurida* (lurid). 3. Green, purple. May. 1838. North India.

GLOSSODIA. (From *glossa*, a tongue, and *eidos*, like; referring to the lip, or labellum. Nat. ord., *Orchids* [*Orchidaceæ*]. Linn., 20-Gynandria 1-Monogynia. Allied to *Limodorum*.)

Greenhouse, New Holland, terrestrial orchids. Offsets; sandy loam and peat; dryish in winter. Winter temp., 45° to 50°.

- G. major* (larger). Blue. June. 1810.
 — *minor* (smaller). Blue. June. 1810.

GLOTTIDIUM. (From *glottis*, the valve of the windpipe; referring to the division in the seed-pod. Nat. ord., *Leguminous Plants* [*Fabacæ*]. Linn., 17-Diadelphia 4-Decandria. Allied to *Daubentonia*.)

Greenhouse annual. Seed in a hotbed, and hardened off by degrees; sandy peat.

- G. Florida-num* (Florida). 2. Yellow. July. Florida. 1816.

GLOXINIA. (Named after P. B. Gloxin, a botanist of Colmar. Nat. ord., *Gesner-worts* [*Gesneraceæ*]. Linn., 14-Didynamia 2-Angiospermia.)

Stove herbaceous perennials. For culture see *GESNERA*.

- G. caulescens* (stemmed). 2. Purple. July. Pernambuco. 1826.
 — *digitaliflora* (foxglove-flowered). 2. Pale crimson. June. Mexico. 1843.
 — *discolor* (two-coloured-leaved). 1½. Lilac, blue. March. Brazil. 1843.
 — *hirsuta* (hairy). 2. Blue. July. S. Amer. 1824.
 — *macrophylla* (large-leaved). Violet. September. Brazil. 1844.
 — *maculata* (spotted-stalked). 1. Purple. September. S. Amer. 1739.
 — *Passinghami* (Passingham's). 2. Violet. September. Rio Janeiro. 1845.
 — *picta* (painted-leaved). Lilac, blue. June. S. Amer. 1842.
 — *variegata* (variegated-leaved). Pale blue. S. Amer.
 — *rubra* (red). Scarlet. September. Rio Janeiro. 1840.
 — *speciosa* (showy). 2. Purple. September. S. Amer. 1815.
 — *alba* (white-flowered). 2. White. September. S. Amer.
 — *tubiflora* (tube-flowered). 1. White. July. South Brazil. 1847.

GLY'CE. (From *glykys*, sweet; alluding to its flavour. Nat. ord., *Crucifers* [*Cruciferae*]. Linn., 15-Tetradynamia.)

By various botanists this British annual has been called *Alyssum*, *Adysetum*, and *Ko'niga*. *G. maritima* by seed in open border; but *variegata* as a greenhouse shrub, by cuttings in spring, under a hand-glass.

- G. maritima* (sea-side). 2. White. July.
 — *variegata* (variegated). White. July.

GLY'CINE. (From *glykys*, sweet; referring to the taste of the roots of some. Nat. ord., *Leguminous Plants* [*Fabacæ*]. Linn., 17-Diadelphia 4-Decandria.)

The well-known Chinese twiner, popularly called *Glycine Sinesis*, belongs to *Wistaria*. Seeds in a hotbed, in spring; cuttings of young side-shoots in spring, in sand, under a bell-glass; peat and loam, with silver sand.

STOVE EVERGREEN TWINERS.

- G. Backhousiana* (Backhouse's).
 — *hedysaroides* (hedysarum-like). 1½. Purple. July. Guinea. 1823. Shrub.
 — *molle* (soft). 3. Yellow. July. W. Ind. 1824.
 — *rosea* (rosy). 1. Rose. Ceylon. 1843.
 — *striata* (streaked). 4. Yellow. July. S. Amer. 1818.

GREENHOUSE EVERGREEN TWINERS.

- G. heterophylla* (various-leaved). 2. Yellow. July. Cape of Good Hope. 1825.
 — *minima* (smallest). 2. Purple. July. N. Holland. 1818.

GLYCYRRHIZA. Liquorice. (From *glykys*, sweet, and *rhiza*, a root; referring to the sweet juice of the roots of the liquorice. Nat. ord., *Leguminous Plants* [*Fabacæ*]. Linn., 17-Diadelphia 4-Decandria. Closely allied to *Galega*.)

Hardy herbaceous perennials. The true liquorice is the root of *G. glabra*; but those of *echinata* and *glandulifera* are equally esteemed as a pectoral. Dividing the roots, taking care that there is one or several buds on each piece; deep, sandy loam.

- G. asperima* (roughest). 2. Blue. July. Siberia. 1795.
 — *echinata* (prickly-headed). 3. Pale. July. Italy. 1596.
 — *foetida* (stinking). 3. Pale yellow. July. Africa. 1817.
 — *glabra* (common-smooth). 3. Pale blue. July. Italy. 1562.
 — *glandulifera* (glanded). 3. Pale. July. Hungary. 1805.
 — *hirsuta* (hairy). 3. Pale. July. Levant. 1739.
 — *lepidota* (scaled-silky-leaved). 3. Pale. July. Missouri. 1811.
 — *Uralensis* (Ural). 3. Pale blue. July. Siberia. 1818.

GLYCYRRHIZA GLA'BRA CULTURE. Common Liquorice.

Soil and Situation.—It thrives best in a rich, light soil, two or three feet deep, which should be trenched completely to the bottom before planting, and a little well-decomposed manure turned in with the bottom spit. In shallow or poor

ground it will not succeed: the situation cannot be too open.

Planting.—It is propagated by cuttings of the side-roots, which spring from the crown of the plants, and run horizontally just beneath the surface. Plant in January, February, or early in March. Each set, having a bud or two, should be about two inches beneath the surface. The only cultivation they require is to be frequently hoed, and in autumn the decayed stalks to be cut down, and the earth stirred between the rows.

The roots are not fit for use until of three or four years' growth. The season for taking them up is December, January, or February. A trench must be dug up regularly along each row, quite down to the extremity of the principal roots, which descend two feet and more.

GMELI'NA. (Named after *G. Gmelin*, a German naturalist. Nat. ord., *Verbenas* [Verbenaceæ]. Linn., 14-*Didynamia* 2-*Angiospermia*. Allied to *Tectona*.)

Evergreen trees. Seeds; cuttings of firm young shoots in sand, and in heat; rich, fibry loam. Summer temp., 60° to 80°; winter, 50° to 55°.

G. Asiatica (Asiatic). 10. Yellow. E. Ind. 1792. Stove.

— *Rheedii* (Rheede's). 14. Orange. May. E. Ind. Stove.

— *speciosissima* (showiest). 15. White. Nepal. 1823. Greenhouse.

GNAPHALIUM. Cudwort, or Everlasting. (From *gnaphalon*, soft down; in reference to the woolly covering of the leaves. Nat. ord., *Composites* [Asteraceæ]. Linn., 19-*Syngenesia* 2-*Superflua*. Allied to *Helichrysum*.)

Seeds of the hardy and tender annuals and biennials in the open ground, and in heat respectively; shrubs, by cuttings under a hand-light; and perennials, by divisions; sandy loam and leaf-mould. *Albesceus* requires a cool stove, and the addition of a little peat.

G. albesceus (whitish). 2. White. Jamaica. 1793. Stove evergreen.

— *involutum* (involved). 1. Brown, yellow. July. New Zealand. 1699. Hardy herbaceous.

— *obtusifolium* (blunt-leaved). 1. Yellow. July. N. Amer. 1732. Hardy annual.

— *purpureum* (purple-flowered). 1½. Purple. July. N. Amer. 1732. Greenhouse biennial.

— *sanguineum* (bloody). 1½. Crimson. July. Egypt. 1768. Hardy biennial.

— *undulatum* (waved). 1. Yellow, white. July. Africa. 1732. Hardy annual.

GN'DIA. (An ancient name for laurel. Nat. ord., *Daphnads* [Thymelaceæ]. Linn., 8-*Octandria* 1-*Monogynia*. Allied to *Pimelea*.)

Greenhouse evergreens, with pale yellow flowers,

from the Cape of Good Hope. Young shoots, when two or three inches long, in sand, above sandy peat, well drained, under a bell-glass; sandy peat, well drained; stagnant water quickly destroys them. Winter temp., 40° to 45°; rather shaded in summer.

G. argentea (silvery). 2. June. 1826.

— *bisflora* (two-flowered). 2. June. 1800.

— *capitata* (round-headed). 1. July. 1782.

— *flava* (yellow). 2. Dark yellow. June. 1825.

— *juniperifolia* (juniper-leaved). 2½. June. 1810.

— *lavinata* (polished). 1. June. 1822.

— *pinifolia* (pine-leaved). 2. June. 1768.

— *oppositifolia* (opposite-leaved). 1. June. 1783.

— *sericea* (silky). 1½. July. 1786.

— *simplex* (simple). 1. July. 1786.

— *stricta* (upright). 2½. June. 1818.

GOAT MOTH. See COSSUS.

GOAT'S BEARD. *Spiræa aruncus*.

GOAT'S FOOT. *Oxalis caprina*.

GOAT'S RUE. *Galega*.

GOAT'S THORN. *Astragalus tragacantha*.

GOBBO. See ARTICHOKE.

GODE'TIA. (Named after *M. Godet*, a foreigner. Nat. ord., *Onagrad* [Onagraceæ]. Linn., 8-*Octandria* 1-*Monogynia*. Allied to *Cenothera*.)

Hardy annuals. Seed sown in common soil, in March and April; also in September, and protected with an evergreen branch in winter.

G. albesceus (whitish). 1½. Purple. June. Columbia River. 1841.

— *decumbens* (leaning-down). 1. Purple. June. California. 1827.

— *grandiflora* (large-flowered). 2½. White, purple. July. Columbia River. 1831.

— *lepidia* (pretty). 1½. Pink. August. California. 1835.

— *Lindleyi* (Lindley's). 1½. Purple. June. N. Amer. 1826.

— *purpurea* (purple-flowered). 1. Purple. May. N. Amer. 1794.

— *quadrivulnera* (four-spotted-petaled). 1½. Pink. September. N. Amer. 1826.

— *Romanzovii* (Romanzow's). 1. Purple. June. N. Amer. 1827.

— *roseo alba* (red and white). 1. Red, white. May. Nepal. 1827.

— *rubicunda* (ruddy). 2. Purple-flame-coloured. July. California. 1834.

— *tene'lla* (delicate). ½. Purple. April. Chili. 1822.

— *tenuifolia* (fine-leaved). 1. Purple. June. Chili. 1828.

— *viminea* (twiggy). 3. Purple. June. California. 1826.

— *vino'sa* (wine-coloured-flowered). 2. Blush. July. California. 1835.

GODO'YA. (Named after *E. Godoy*, whose Spanish title was the Prince of Peace. Nat. ord., *Theads* [Ternströmiaceæ]. Linn., 13-*Polyandria* 1-*Monogynia*. Allied to *Thea*.)

Stove evergreen tree. Cuttings of ripened shoots in sand, under a glass, and in strong bottom-heat. Summer temp., 60° to 80°; winter, 50° to 55°.

G. gemmiflora (bud-flowered). 8. Yellow. Brazil. 1820.

GOE'THEA. (In honour of the poet-
2 c

Goethe. Nat. ord., *Mallowworts* [Malvaceæ]. Linn., 16-Monadelphia 8-Polyandria.)

Stove evergreen. For culture see PAVONIA.

G. strictiflora (upright-flowering). 1½. Crimson, white. August. Brazil. 1852.

GOLDEN APPLE. *Ægle*.

GOLDEN HAIR. *Chrysocoma coman'rea*.

GOLDEN ROD. *Solidago*.

GOLDEN SAXIFRAGE. *Chrysosplenium*.

GOLDEN THISTLE. *Scolymus* and *Protea scolymus*.

GOLDFUSSIA. (Named after Dr. Goldfuss, professor of natural history in the university of Bonn. Nat. ord., *Acanthads* [Acanthaceæ]. Linn., 14-Didynamia 2-Angiospermia. Allied to Ruellia.)

Stove evergreen shrubs, from Silhet, that should be cut down freely after flowering in winter; young shoots when three inches long, after the plant has commenced growing, in sand, under a glass, in heat; sandy peat and fibry loam. Summer temp., 60° to 85°; winter, 45° to 55°.

G. anisophylla (unequal-leaved). 3. Blue. July. 1823.

— *glomerata* (crowded-flowered). 1. Purple. October. 1833.

— *isophylla* (equal-leaved). 2. Pale lilac. September.

GOLDY LOCKS. *Chrysocoma*.

GO'MPHEA. Button Flower. (From *gomphos*, a club; said to be the shape of the fruit. Nat. ord., *Ochnads* [Ochnaceæ]. Linn., 10-Decandria 1-Monogynia.)

Stove evergreen shrubs, with yellow flowers. Cuttings of young shoots getting firm, in sand, under a bell-glass, and in heat; sandy loam and a little peat. Summer temp., 60° to 85°; winter, 50° to 55°.

G. Jabotapita (Jabotapita). 5. Jamaica. 1820.

— *lavigata* (smooth-leaved). 4. 1820.

— *laurifolia* (laurel-leaved). 5. Jamaica. 1823.

— *nitida* (glossy-leaved). 4. Jamaica. 1803.

— *obtusifolia* (blunt-leaved). 3. Jamaica. 1803.

— *Zeylanica* (Ceylon). 4. Ceylon. 1823.

GOMPHOCARPUS. (From *gomphos*, a club, and *karpus*, a fruit; shape of the seed-pods. Nat. ord., *Asclepiads* [Asclepiadaceæ]. Linn., 5-Pentandria 2-Di gynia. Allied to *Asclepias*.)

Greenhouse evergreens, from the Cape of Good Hope. Seeds sown in a hotbed in spring. Cuttings of the points of shoots, and better still, small side-shoots, when growth is commencing, in sand, under a bell-glass. Sandy loam and fibry peat. Summer temp., 55° to 75°; winter, 40° to 45°.

G. arboreascens (tree-like). 5. White. December. 1714.

— *crispus* (curled-leaved). 1. Yellow. July. 1714.

— *fruticosus* (shrubby). 5. White. July. 1714.

GOMPHOLBIUM. (From *gomphos*, a club, and *lobos*, a pod; shape of seed-vessel. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 10-Decandria 1-Monogynia.)

Greenhouse evergreens, from New Holland. Cuttings of young shoots, about two inches in length, in sand, under a bell-glass, in a shaded place, in April or May; peat and loam in little fibry pieces, with rubbly charcoal, potsherds, and silver sand; drainage must be well attended to, as saturated soil is their ruin. Winter temp., 40° to 48°. All have yellow flowers, except where otherwise mentioned.

G. aduncum (hooked). May. 1837.

— *angustifolium* (narrow-leaved). May. 1825.

— *aristatum* (awned). May. 1837.

— *barbigerum* (bearded-keeled). 2. June. 1824.

— *capitatum* (round-head-flowered). 2. July. 1830.

— *Drummondii* (Drummond's). August. 1839.

— *glabratum* (smooth). 1½. June. 1820.

— *glaucescens* (milky-green). ½. June. 1824.

— *grandiflorum* (large-flowered). 2. June. 1803.

— *setifolium* (bristle-leaved). 2. June. 1825.

— *Hendersoni* (Henderson's). August. 1840.

— *Knightianum* (Knight's). ½. August. 1830.

— *lanatum* (woolly). 1½. May. 1824.

— *latifolium* (broad-leaved). 2. May. 1803.

— *marginatum* (edged). 2. May. 1820.

— *Mirbelioides* (Mirbelia-like). 1½. May. 1823.

— *pedunculare* (long-flower-stalked). ½. May. 1824.

— *pinndatum* (leafleted). ½. May. 1820.

— *polymorphum* (many-form). 2. June. 1803.

— *reticulatum* (netted-leaved). 1½. May. 1824.

— *splendens* (shining). June. 1843.

— *tenullum* (delicate). 1½. May. 1824.

— *tenuis* (slender). 1. August. 1838.

— *tetratecois* (tetratecha-like). 1½. May. 1824.

— *tomentosum* (shaggy). 3. May. 1803.

— *venulosum* (veiny-leaved). 1½. Purple. June. 1830.

— *venustum* (beautiful). 3. May. 1803.

— *versicolor* (changeable-coloured). 1½. Red, yellow. March. 1838.

— *caulibus purpureis* (purple-stalked). 1½. Red. March. 1838.

— *virgatum* (twiggy). 1½. May. 1820.

GOMPHRENA. Globe Amaranth. (From *gomphos*, a club; the shape of the flowers. Nat. ord., *Amaranths* [Amaranthaceæ]. Linn., 5-Pentandria 1-Monogynia.)

Stove plants. Perennials, by seed and divisions; the shrubby, by seed and cuttings; the annuals and biennials, by seed in a hotbed. The Globe varieties are very useful for ornament, and should have equal care, potting, soil, heat, &c., as the Cockscombs.

G. globosa (globe-flowered). 1½. Red. July. India. 1714. Annual.

— *alba* (white). 1. White. July. India. 1714. Annual.

— *perennis* (perennial). 2. Pale yellow. August. 8. Amer. 1732. Herbaceous.

— *pulchella* (pretty). 1½. Rosy. July. Brazil. 1843. Annual.

— *villosa* (long-haired). Striped. June. Monte Video. 1826. Evergreen shrub.

GOMUTUS. (A palm of that name in Malabar. Nat. ord., *Palms* [Palmaceæ]. Linn., 21-Diacia 9-Enneandria.)

Seed, on strong heat; peat and loam. Summer temp., 60° to 85°; winter, 55° to 60°.

G. saccharifer (sugar-bearing). 40. Moluccas. 1820.

GONGO'RA. (Named after a Spanish

viceroy of New Grenada. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-*Gynandria-Monandria*. Allied to *Batemannia*.)

Stove orchids. Divisions; baskets filled and packed with sphagnum, fibry peat, and broken pots, and pieces of charcoal. Summer temp., 60° to 90°, with plenty of atmospheric moisture; winter, 55° to 65°, and dryish.

- G. a'tro-purpu'rea* (dark purple). 1. Dark purple. June. Trinidad. 1824.
 — *ma'ior* (larger). Purple. May. Demerara. 1834.
 — *pi'cta* (painted). Yellow, purple. May. Demerara. 1836.
 — *bufo'nia* (toad-coloured). 1. Variegated. May. Brazil. 1841.
 — *leucoche'illa* (white-lipped). Purple, white. May. Brazil. 1840.
 — *ma'ior* (larger). Purple, white. May. Brazil. 1837.
 — *fu'lea* (tawny). ½. Yellow, blue. July. Mexico. 1838.
 — *vitelli'na* (yolk-of-egg). Yellow. May. Mexico. 1841.
 — *Galeottia'na* (Galeott's). Mexico.
 — *macula'ta* (spotted-flowered). 2½. Yellow-spotted. May. Demerara. 1832.
 — *a'lba* (white-flowered). 2. White. May. Guiana. 1836.
 — *aura'ntia* (orange). Orange. May. Guiana. 1842.
 — *ca'ndida* (white). White. May. Guiana. 1843.
 — *citri'na* (citron). Yellow. May. Guiana. 1837.
 — *fu'gens* (blazing). Guiana. 1837.
 — *fu'sca* (dark brown). Guiana. 1836.
 — *gra'cilis* (slender). Guiana. 1839.
 — *grisea* (grey). Demerara. 1836.
 — *igne'a* (flame-coloured). 2. Flame. May. Brazil. 1837.
 — *lu'tea* (yellow). Guiana. 1835.
 — *sangu'inea* (blood-coloured). Demerara. 1836.
 — *squa'lens* (mean). Guiana. 1837.
 — *tri'color* (three-coloured). 2. Golden-brown. May. Panama. 1842.
 — *nigri'ta* (blackish). Dark purple. July. Demerara. 1838.
 — *quinque'ne'vis* (five-nerved). Yellow, purple. May. Peru.
 — *trunca'ta* (blunt-flowered). Red, yellow. April. Mexico. 1842.

GONIOPHLEBIUM. (From *gonia*, an angle, and *phlebia*, a vein; alluding to the veins of the fronds. Nat. ord., *Polypods* [Polypodiaceæ]. Linn., 24-*Cryptogamia 1-Filices*. Allied to *Polypodium* and *Acrostichum*.)

Stove Ferns. Division in the spring, as fresh growth is commencing; peat and loam. Summer temp., 60° to 85°; winter, 50° to 55°. *Attenuatum* will do with greenhouse treatment.

- G. a'lbo puncta'tum* (white-dotted). Brown, yellow. July. S. Amer. 1840.
 — *argu'tum* (sharp). Brown. Nepaul. 1845.
 — *attenua'tum* (thin). 4. Yellow. June. N. S. Wales. 1823.
 — *Catheri'na* (St. Catherine's). 1. Brown. Brazil. 1841.
 — *dissi'mile* (unlike). 2. Yellow. June. Brazil. 1820.

- G. harpeo'des* (scimitar-like). Brown. Brazil. 1841.
 — *inca'num* (hoary). W. Ind. 1840.
 — *la'tipes* (broad-footed). Brown. Brazil. 1841.
 — *menisco'filium* (meniscium-leaved). Brazil. 1840.
 — *nerio'filium* (oleander-leaved). 5. Brown. July. Brazil. 1837.
 — *pectina'tum* (comb-leaved). 1½. Yellow. July. W. Ind. 1793.
 — *pilosello'i'des* (pilosella-like).
 — *sepu'ltum* (enclosed). 1. Brown. Brazil. 1841.
 — *vaccini'folium* (bilberry-leaved). Brazil. 1841.

GONIOPTERIS. (From *gonia*, an angle, and *pteris*, a fern; referring to the leaves. Nat. ord., *Polypods* [Polypodiaceæ]. Linn., 24-*Cryptogamia 1-Filices*.)

Stove Ferns. Treatment as for *Goniophlebium*. The New Zealand and New Holland species will thrive in the greenhouse.

- G. as'pera* (rough). Brown, yellow. July. Isle of Luzon.
 — *asplenio'i'des* (asplenium-like). Brown, yellow. July. Jamaica. 1841.
 — *costa'ta* (ribbed). Brown, yellow. June. E. Ind.
 — *crena'ta* (scalloped). W. Ind. 1835.
 — *fraxinifo'lia* (ash-leaved). 2. Brown. August. Brazil. 1841.
 — *megalo'des* (picture-like). Brown. July. W. Ind. 1843.
 — *penni'gera* (feathered). Brown, yellow. July. New Zealand. 1835.
 — *proli'fera* (proliferous). 1. Brown, yellow. May. E. Ind. 1820.
 — *ru'bida* (red). Brown. July. Isle of Luzon.
 — *tetrago'na* (four-angled). Brown. W. Ind. 1843.
 — *urophy'lla* (tail-leaved). Brown, yellow. June. E. Ind.

GONOLOBUS. (From *goma*, an angle, and *lobos*, a pod; referring to the shape of the seed-vessel. Nat. ord., *Asclepiads* [Asclepiadaceæ]. Linn., 5-*Pentandria 2-Digynia*.)

The hardy species by seeds and divisions, in dry, sandy soil. The greenhouse and stove species, divisions, by seed in heat, and by cuttings of the young shoots in sand, under a bell-glass. The stove kinds require bottom-heat; peat and loam, with silver sand, and a little dry cow-dung.

HARDY DECIDUOUS TWINERS.

- G. di'scolor* (two-coloured). 8. Green. July. N. Amer. 1809.
 — *macrophy'llus* (large-leaved). 6. Yellow. July. N. Amer. 1822.
 — *Nuttallia'nus* (Nuttall's). 4. Green. July. Mississippi, 1822.

GREENHOUSE TWINERS.

- G. Caroline'nsis* (Carolina). 6. Purple. July. Carolina. 1824. Deciduous.
 — *prostra'tus* (lying-down). 3. Green. July. Mexico. 1823. Evergreen.

STOVE DECIDUOUS TWINERS.

- G. crispifo'rus* (curled-flowered). 2. White, green. July. S. Amer. 1741.
 — *grandifo'rus* (large-flowered). 10. Green. July. Trinidad. 1826.

STOVE EVERGREEN TWINERS.

- G. h'ispidus* (bristly). Black. July. Brazil. 1837.
 — *maritimus* (sea-shore). 6. Green. June. Carthage. 1823.

G. niger (black). 6. Dark purple. October. Mexico. 1825.
— *suberosus* (cork-barked). 6. Green. August. S. Amer. 1732.

GOODE'NIA. (Named after Dr. Goodenough, bishop of Carlisle. Nat. ord., *Goodeniads* [*Goodeniaceæ*]. Linn., 5-*Pentandria* 1-*Monogynia*.)

All New Holland plants, with yellow flowers, except where otherwise mentioned. Herbaceous, by seeds and divisions in spring; the shrubby, by cuttings in sand, under a bell-glass, in April; peat and loam. Winter temp., 40° to 45°.

G. bellidifolia (daisy-leaved). 3. July. 1823.
— *decurrens* (running-down-leaved). 1. May. 1825.

— *gracilis* (slender). 1½. July. 1822.
— *grandiflora* (large-flowered). 4. July. 1803.
— *hederaacea* (ivy-leaved). ½. July. 1813.
— *heterophylla* (various-leaved). 1. Pale red. July. 1826.

— *incaena* (hoary). ½. Blue. May. 1842.
— *ovata* (egg-leaved). 2. July. 1793.
— *paniculata* (panicked). 1. July. 1823.
— *rigida* (stiff). Blue. June.
— *stelligera* (star-haired). 3. June. 1823.

GOO'DIA. (Named after P. Good, a collector of plants in Australia for Kew Gardens. Nat. ord., *Leguminous Plants* [*Fabaceæ*]. Linn., 16-*Monadelphia* 6-*Decandria*. Allied to *Templetonia*.)

Greenhouse evergreen shrubs, with yellow blossoms, from Van Diemen's Land. Seeds and cuttings of the young shoots in May, in sand, under a glass; sandy peat and fibry loam. Winter temp., 40° to 48°. A shady place for the pots in summer. All, and especially *lotifolia*, should be tried against a wall, with a little protection in winter.

G. lotifolia (lotus-leaved). 3. June. 1793.
— *polysperma* (many-seeded). 2. June. 1790.
— *pubescens* (downy). 3. June. 1805.

GOODYE'RA. (Named after J. Goodyer, a British botanist. Nat. ord., *Orchids* [*Orchidaceæ*]. Linn., 20-*Gynandria* 1-*Monandria*. Allied to *Neottia*.)

Terrestrial orchids. Divisions of the roots; peat and loam, with a little decayed wood and charcoal.

HARDY.

G. pubescens (downy). 3. White. July. N. Amer. 1802.
— *repens* (creeping). 3. White. July. Scotland.
— *tessellata* (chequered). 3. White. July. N. Amer. 1821.

STOVE.

G. discolor (two-coloured). 1. White. November. S. Amer. 1815.
— *procera* (tall). 2. White. June. Nepaul. 1821.
— *rubicunda* (reddish-flowered). Cinnamon. July. Manilla. 1838.

GOOSEBERRY. *Ribes grossularia*.

VARIETIES.—General Dessert kinds.—*Champagne*, r. and v.; *Early Green*, hairy, g.; *Golden Drop*, v.; *Rockwood*, v.; *Pitmaston Green-Gage*, g.; *Warrington*, or *Aston Seedling*, r.; *Taylor's Bright*

Venus, w.; *Whitesmith*, w.; *Glenton Green*, g.; *Walnut*, g.; *Early Sulphur*, v.; *Massey's Heart of Oak*, g.; *Wellington's Glory*, w.; *Rumbullion*, v.

Late Dessert kinds (for retarding on trellises).—*Warrington*, r.; *Pitmaston Green-Gage*, g.; *Coe's Late Red*, r.; the *Champagnes*, r. and v.

Bottling.—*Rumbullion*, v.

Preserving.—*Rough Red*, *Warrington*, *Champagne*.

Large kinds (very good).—*Prince Regent*, r.; *Wonderful*, r.; *Roaring Lion*, r.; *Top Sawyer*, r.; *Rockwood*, v.; *No Bribery*, v.; *Sovereign*, v.; *Wellington's Glory*, w.; *Queen Charlotte*, w.; *Greenwood*, g.; *Glenton Green*, g.

The letters r. v. g. w. refer to the colours, red, yellow, green, white.

Propagation: by Cuttings.—Large, straight, and healthy young shoots should be procured at the end of autumn, and these may be shortened to about fifteen inches in length, cutting away the weaker portion—the point. All the eyes or buds must be cut out, except the four top ones, in order to prevent the future plant from producing suckers. These should be planted in any ordinary garden-soil, in a light situation, but not too sunny. Plant about four inches deep, and keep them tolerably moist during spring and early summer. Cuttings of young growing shoots, also, strike readily under a glass.

Layering is performed as with other deciduous shrubs; if in the old wood, at the same period as the cuttings, and for the same reasons; if in the young shoots, when they have acquired some strength, about the beginning of July.

Seed.—This is the source whence new varieties may be obtained. The seed being washed out of the pulp when ripe, may be sown immediately; and in the ensuing spring, if the plants can be early subjected to a slight bottom warmth, they will be a foot in height in the first summer, and may, with good management, be brought to bear, some in the second year, and all in the third.

Soil.—A deep, sandy loam is best adapted to the gooseberry. Any free garden-soil, of average quality, will produce them in tolerable perfection, if well manured, and, above all things, freed from excess of moisture. Gooseberries will never thrive in stagnant soil; they will become hide-bound speedily, and their stems covered with moss. Never-

theless, they are very partial to a permanency of surface moisture in the growing season, and for that purpose top-dressings are had recourse to. Wherever fine gooseberries are required, the situation must be totally unshaded; it, however, becomes good policy at times to plant some under the partial shade of small trees. In such situations they will set in a frosty spring, when those exposed are cut off.

Culture in Growing Period.—A due training, especially whilst young, is necessary. Those who grow them for exhibition use two sorts of sticks, viz., forks and hooks. These are cut out of any ordinary brush-wood, about half a yard long, and they must be neatly pointed. Thus the hooks are made to draw down refractory shoots, and the forks to prop up the drooping ones. It is a good practice to apply a top-dressing of half-rotten manure in the beginning of May; and just before the fruit has completed its last swelling, the points of all the longest straggling shoots may be pinched or dubbed. It is well to go over the bushes in the early part of June, and remove much of the waste spray which chokes the interior of the bush. Some of the grosser shoots may be entirely removed, and all others of a doubtful character may have the points pinched. This will throw both size and flavour into the berry, and add to the value of the remaining wood for the ensuing crop.

Culture in the Rest Period.—Pruning is the first point; and the sooner this is performed after the fall of the leaf the better. It consists, mainly, in thinning out. When a bush is well thinned, no two shoots will touch; indeed, they should be, on an average, three inches apart all over the bush. Most good cultivators keep the middle of the bush very open. This is especially necessary during the first three years from striking the cutting; and the principle should be attended to, less or more, at every annual pruning afterwards. In selecting wood to remain, choose that which is strong, but not over luxuriant; the latter, with all weakly and inferior wood, may be cut clear away; cutting away, also, all coarse snags in the interior of the branches. Lastly, shorten every point which appears weakly or incomplete in character, just so far as such inferiority is manifest. The root must now receive attention. Some of our

show gooseberry growers open a trench around their bushes annually, at about the distance the branches extend, cutting away all coarse roots beyond that line. They then fill in the trench with good fresh loam and cow-dung blended. Whether this be done or not, a top-dressing of half-decayed manure should be annually applied, scraping away the loose surface, and placing the manure next the top fibres, and then soiling the whole over.

Insects.—See ABRAXUS, APHIS, and NEMATUS.

GORDONIA. (Named after Mr. Gordon, a London nurseryman. Nat. ord., *Theads* [Ternströmiaceæ]. Linn., 16-Monadelphia 8-Polyandria. Allied to Stuartia.)

Hardy deciduous shrubs, except *hamatoxylon*, which is a stove evergreen, and requires peat soil; cuttings of young shoots in sand, under a bell-glass, in heat. The others, though hardy, flowering late, are ornaments for the greenhouse; layers in autumn, seeds in spring, and cuttings in sandy peat, under a hand-light, in summer, in a shady place. *pubescens* and *Franklini* are the hardiest; but *lasianthus* is the most beautiful, and blooms chiefly in summer and autumn. Peat, leaf-mould, and sand, with a trifle of loam, deep, and on a retentive sub-soil; if not naturally so, puddled with clay, so that the plant may obtain something of its native position in swampy soil.

G. Franklini (Franklin's). 4. White. September. N. Amer. 1774.

—*hamatoxylon* (red-wood). 40. White. Jamaica. 1820.

—*lasianthus* (hairy-flower). 6. Yellow. September. N. Amer. 1739.

—*pubescens* (downy). 4. White. July. Carolina. 1774.

GORTERIA. (Named after D. Gorter, a Dutch botanist. Nat. ord., *Compositæ* [Asteraceæ]. Linn., 19-Syngenesia 3-Frustranea. Allied to Gazania.)

Greenhouse annual. Sow in common soil in the greenhouse, in March; or in the open border at the end of May.

G. personata (masked). $\frac{1}{2}$. Yellow. August. Cape of Good Hope. 1774.

GOSYPIUM. Cotton-tree. (From *goz*, Arabic for a soft substance. Nat. ord., *Mallouwperts* [Malvaceæ]. Linn., 16-Monadelphia 8-Polyandria.)

The cotton of commerce is the hairy covering of the seeds of several species of this genus. *Barbadeuse* and *herbaceum*, especially the former, furnish the best cotton. Stove plants. Annuals and biennials, by seed in moist heat, in spring; perennial herbaceous, by seed and divisions, in similar circumstances; shrubs, by cuttings of young shoots, just getting firm, in sandy soil, under a bell-glass, and in bottom-heat; rich, sandy loam. Summer temp., 60° to 85°; winter, 50° to 60°.

G. arboreum (tree). 12. Yellow. July. E. Ind. 1694. Evergreen shrub.

—*Barbadeuse* (Barbadoes). 5. Yellow. September. Barbadoes. 1759. Biennial.

- G. herba-ceum* (common-herbaceous). 3. Yellow. July. E. Ind. 1594. Annual.
 — *Indicum* (Indian). 3. Yellow. August. E. Ind. 1800. Biennial.
 — *latifolium* (broad-leaved). 5. Yellow. July. 1800. Evergreen shrub.
 — *obtusifolium* (blunt-leaved). 5. Yellow. July. E. Ind. Evergreen shrub.
 — *religiosum* (religious). 3. Yellow. July. India. 1777. Herbaceous perennial.

GOVA'NIA. (Named after A. Gouan, once professor of botany at Montpellier. Nat. ord., *Rhamnads* [*Rhamnaceæ*]. Linn., 23-*Polygamia* 2-*Diœcia*. Allied to *Trymalium*.)

Evergreen stove climbers. Cuttings of half-ripened shoots in sand, under a bell-glass, in bottom-heat; fibry peat and sandy loam. Summer temp., 60° to 80°; winter, 50° to 55°.

- G. cordifolia* (heart-leaved). 10. Yellow. Rio Janeiro. 1820.
 — *Domingensis* (St. Domingo). 10. Yellow. W. Ind. 1739.
 — *integrifolia* (entire-leaved). 10. Green, yellow. 1800.
 — *Mauritia'na* (Mauritian). 10. Green, yellow. Mauritius. 1825.
 — *tiliaefolia* (lime-tree-leaved). 10. Yellow. July. E. Ind. 1810.
 — *tomentosa* (woolly). 10. Green, yellow. W. Ind. 1823.

GOUB. *Cucurbita*.

GOVE'NIA. (Named after J. R. Gowen, a distinguished horticulturist, and cross-breeder of plants. Nat. ord., *Orchids* [*Orchidaceæ*]. Linn., 20-*Gynandria* 1-*Monandria*. Allied to *Batemannia*.)

Stove terrestrial orchids. Divisions of the plant; peat and loam, with a little charcoal and silver sand. Summer temp., 60° to 85°; winter, 50° to 55°.

- G. fasciata* (banded-flowered). 1½. Yellow. January. Mexico. 1843.
 — *Gardneri* (Gardner's). 2. Green, yellow. December. Organ Mountains. 1837.
 — *lagenophora* (bottle-bearing). 1½. White. January. Mexico. 1844.
 — *lilicea* (lily-flowered). 1. White. July. Mexico. 1837.
 — *superba* (superb). 5. Yellow. March. Mexico. 1828.
 — *utriculata* (bladdery-sheathed). 1½. Cream. August. Jamaica. 1843.

GRÆLLISA. (Name unexplained. Nat. ord., *Crucifers* [*Brassicaceæ*]. Linn., 15-*Tetradynamia*. Allied to *Cochlearia*.)

Hardy herbaceous plant, suited for rock-work; common, sandy soil; division, and cuttings under a hand-light, in sandy soil, in summer.

- G. saxifragifolia* (saxifrage-leaved). 3. White. July. Persia. 1844.

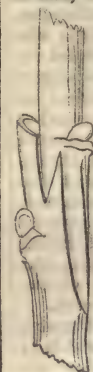
GRAFF, or GRAFT. This, also called the *scion*, is the portion of a branch selected to be inserted or grafted upon a stock or rooted stem, to form the head of the future plant. See GRAFTING and STOCK.

GRAFTING is uniting a scion of one plant to the root, branch, or stem of another. The scion and stock must be of nearly-related species.

The objects of grafting are:—1st. To increase choice kinds. 2nd. To increase the vigour of delicate kinds. 3rd. To reduce the vigour of those which are too gross. 4th. To accelerate the period of fruiting. 5th. To adapt kinds to soils for which they would be unfitted on their own roots. 6th. To renovate old kinds.

We now proceed to give a series of cuts, illustrative of all the modes which are usual in general horticulture:—

1. *Whip Grafting*, called also *Splice* and *Tongue Grafting*.—This is the most common mode, and is that almost universally adopted in our nurseries; and when the stock and scion are equal in size, is perhaps the handiest. The



head of the stock is pruned off at the desired height, and then a slip of bark and wood removed at the upper portion of the stock, with a very clean cut, to fit exactly with a corresponding cut which must be made in the scion. A very small amount of wood must be cut away, and the surface made quite smooth. Care must be taken that no dirt be upon the cuts in this, and, indeed, in all the other modes. The scion must now be prepared. This should have at least three or four buds, one of which should, where possible, be at the lower end, to assist in uniting it to the stock. A sloping cut must now be made in the scion: this cut must correspond with that on the stock, and a slit made to fit in a cleft made in the stock when heading it. This slit serves to maintain the scion steadily in its place until properly fastened, and is more a matter of convenience than anything else. Care must be taken that the scion fits *bark to bark*, on one side at least; for it is not the old or existing portion of wood that forms the union, but a tissue which has to be produced, just as when the sides of a wound have to be reunited. This power exists in the albuminous matter, which lays next the inner bark; and the substance which forms the union, and which is secreted by the returning sap, is termed *cambium*.

Where the stock and scion disagree in point of size, of course only one side can touch, and great care should be taken in this part of the operation; and, in the case of a young scion on an old tree, some allowance must be made for the ruggedness of the bark. The scion being thus adjusted, the whole is bound close, but not too tightly, with a shred of bass mat, care being taken that the inner barks coincide. The clay is now applied, in order to keep the parts moist, and some practitioners pile soil over the grafted part, when near enough the ground. In all the modes of grafting it may here be observed, that the chief ground of success lies in nicely fitting together some corresponding portions of the inner bark of the scion and stock.

2. *Crown*, called also *Cleft* or *Wedge Grafting*.—This is applied to various plants as well as fruits, as, for instance, the rose, cactuses, &c. Vines, also, are frequently grafted by this mode. As in whip grafting, it accelerates the union if the bottom of the scion has a bud or two. In the case of the vine, it is considered necessary to let the stock grow a little before grafting; care must be taken, however, to keep some growing portions on the stock, above the graft, or severe bleeding would ensue. As the name indicates, a cleft, or division, is made in the stock to receive the scion, which is cut like a wedge; again taking care, in case of inequality of size, to make one side fit *bark to bark*. When the scion and stock are unequal in size, both sides of the scion may be brought to fit by cutting the cleft nearer to



one side of the crown than the other. The wound is bound over, as in the other processes, with bast, and covered over with clay, or grafting-wax. The camellia succeeds well when grafted this way: even a single bud will make a plant, provided the stocks are kept in a damp and shady atmosphere for a few weeks after grafting. The stock here, also, should be slightly in advance, that is, should be forwarder in growing than the graft or scion. The best time is just as the sap is rising.

3. *Cleft Grafting*, as represented in this sketch, is only a kind of crown grafting, and is practised on stocks one or two inches in diameter, and, there-



fore, too large for whip grafting. Cut or saw off the head of the stock in a sloping form; with a knife or chisel cleave the stock at the top, making the cleft about two inches deep; keep it open by leaving in the chisel; cut the lower end of the scion into the form of a wedge, one inch and a half long, and the side that is to be towards the middle of the stock sloped off to a fine edge; place the bark of the thickest side of the wedge-end of the scion so as to correspond exactly with the bark of the stock; take away the chisel, and then the sides of the stock will pinch and hold fast the scion. Two scions may be inserted, one on each side of the cleft; but in this case the top of the stock must not be cut off sloping. Bast and clay must be put on as in the other modes of grafting.

4. *Saddle Grafting*.—The top of the stock is cut to a wedge shape, and the scion or graft cleft up the middle, and placed astride on the wedge of the stock; hence the name. The binding and claying are performed as in the other modes, care being taken to make at least one of the sides meet *bark to bark*.



A modification of this mode is practised in some of our cider counties, where they do not hesitate to practise it in the middle of summer, when the young wood has become somewhat mature. The scion is chosen smaller than the stock, and is cleft about three inches at the lower end, so that one side is rather thicker than the other. The rind of the stock is then opened on one side, and the thick side of the scion introduced between the bark and wood; the thinner portion is carried astride the stock, and down the opposite side, a slight cutting having been made to receive it, on the principle of making corresponding parts meet. This, though tedious, is a very safe mode of grafting, inasmuch as it presents a greater expanse of albuminum for effecting the junction.

5. *Side Grafting*.—This, in

general, is performed on trees on which the top is required to remain, and is well adapted for the insertion of new kinds of pears, or other fruits, on established trees, in order to increase the collection, or to hasten fruit-bearing. It is also adapted to furnish naked portions of old shoots. It is, however, not so safe a mode as some of the others. Little description is needed; the cut will sufficiently illustrate it.



6. *Chink or Shoulder Grafting*.—This is not much in use in this country; and, indeed, we see little occasion for its practice. When the stock and scion are equal in size, however, it offers an opportunity of gaining the advantage of an extra amount of alburnous union. The cut will explain it.



7. *Root Grafting*.—An old practice; but, with regard to deciduous fruit-trees, it offers no particular advantage over the ordinary whip grafting, when performed near to the ground. It is, perhaps, better adapted for very large scions, for in many trees such may be used when two or three inches diameter. When strongly bound they may be soiled overhead, merely leaving a hole for the bud of the scion to come through, which, in this case, will rise like a sucker.



8. *Peg Grafting*.—This mode is now never practised in England, and we only insert the annexed engraving, because it completes our catalogue of all the known modes. Of these eight modes there are many modifications; but they are all derived from the eight enumerated. Peg grafting never having been practised by ourselves, we shall only make this extract relative to it: "The scion must be of the exact size of the stock; bore a hole into the centre of the stock, one and a half inch deep; cut the bottom of the scion to fit; the



edges of the barks must be very smooth and fit exactly."

General Observations.—For ordinary garden purposes, we think the whip, the cleft, the saddle, and the crown, the most eligible modes by far. These may be said to be the rule, the others are merely exceptional cases.

In all these proceedings a few axioms or main principles must be kept steadily in view. Of such are the following:—

1st. The scions of deciduous trees should be taken from the parent tree some weeks before the grafting season, and "heeled" (the lower ends put into the soil) in some cool and shady place. This causes the stock to be a little in advance of the graft, as to the rising of the sap, a condition admitted on all hands to be essential.

2nd. Let all the processes be performed with a very clean and exceedingly sharp knife, taking care that nothing, such as dirt or chips, gets between the scion and the stock.

3rd. Let the bandage be applied equally and firmly; not so tight, however, as to cut or bruise the bark. For this reason, broad strands of bast are exceedingly eligible.

4th. In selecting grafts be careful in choosing the wood, avoiding, on the one hand, exhausted or bad-barked scions, and, on the other, the immature, watery spray which frequently springs from the old trunks of exhausted or diseased trees.

Grafting Clay, to make.—Take some strong and adhesive loam, approaching to a clayey character, and beat and knead it until of the consistence of soft-soap. Take, also, some horse-droppings, and rub them through a riddle, of half-inch mesh, until thoroughly divided. Get some cow-manure (the fresher the better), and mix about equal parts of the three, kneading and mixing them until perfectly and uniformly mixed; some persons add a little road-scrappings to the mass. A vessel with very finely-riddled ashes must be kept by the side of the grafter, and after the clay is closed round the scion the hands should be dipped in the ashes: this enables the person who applies the clay to close the whole with a perfect finish. It must be so closed as that no air can possibly enter; and it is well to go over the whole in three or four days afterwards, when, if any have rifted or cracked, they may be closed.

Grafting Wax.—The following recipe has been recommended by a first-rate authority:—Take common sealing-wax, any colour but green, one part; mutton fat, one part; white wax, one part; and honey, one-eighth part. The white wax and the fat are to be first melted, and then the sealing-wax is to be added gradually, in small pieces, the mixture being kept constantly stirred; and, lastly, the honey must be put in just before taking it off the fire. It should be poured hot into paper or tin moulds, to preserve for use as wanted, and be kept slightly stirred till it begins to harden.

GRAINS OF PARADISE. *Amo'mum grana-paradi'si*.

GRAMMA'NTHE. (From *gramma*, writing, and *anthos*, a flower; marks like V being on the corolla. Nat. ord., *House-leeks* [Crassulaceæ]. Linn., 5-*Pentandria* 5-*Pentagynia*.)

Greenhouse annuals, from the Cape of Good Hope. Sow thinly in pots, well drained; lime-rubbish and sandy loam, equal parts; plants may be kept in greenhouse, or planted on rock-work in summer.

G. chlorocarpa (yellow-flowered). 4. Yellow, red.

— *G. (G.?)* (pinkish-red). 4. Pinkish-red.

G. (G.?) (pinkish-red). 4. Pinkish-red. Nat. ord., 20-*Gynandria* 20-*Gynandria*.)

Glove-scented; divisions; basket well raised in it, and packed with sphagnum and fibry peat. Summer temp., 60° to 90°; winter, 50° to 55°.

G. auriflorum (many-flowered). 2. Brown, green. May. Manila. 1838.

— *tigrinum* (tiger-like). Spotted. May. Manila. 1837.

— *speciosum* (showy). 6. Yellow, brown. May. E. Ind. 1837.

GRAMM'TIS. (From *gramme*, lettering; in reference to the spore-cases, or seed apparatus. Nat. ord., *Ferns* [Polypodiaceæ]. Linn., 24-*Cryptogamia* 1-*Filices*.)

Chiefly stove Ferns, with brownish-yellow spores. Division; peat and loam. Summer temp., 60° to 80°; winter, 50° to 58°.

G. Australis (Australian). July. N. S. Wales. 1822.

— *cuculla'ta* (hooded). July. Isle of Luzon. 1840.

— *elongata* (elongated). July. W. Ind. 1824.

— *furcata* (forked-leaved). July. Trinidad. 1825.

— *hirsuta* (hairy). July. Isle of Luzon. 1840.

— *lanceolata* (spear-head-leaved). July. Mauritius. 1824.

— *linearis* (narrow-leaved). July. Jamaica. 1823.

GRANAD'LLA. This is a name sometimes given to several species of the Pas-

siflora; but one only is the true *Granadilla*, *Passiflora quadrangula'ris*; but *P. edulis* also produces edible fruit, and may be similarly cultivated. We are aware that there are other species of *Passiflora*, the fruits of which are eatable, such as the *P. malifo'rmis*, or sweet calabash; *P. laurifo'lia*, the laurel-leaved or water-lemon; and *P. incarna'ta*, or the flesh-coloured, &c.

Propagation.—They are nearly all readily propagated by *seeds*; but most cultivators who grow them for table purposes prefer *cuttings*; and they are quite right; for, like most of the Cucurbitaceous group, to which they approximate, they are apt to run much to bine if raised from seed. Plants from cuttings grow more moderately, and blossom sooner. Seedlings will fruit readily at two years old; but cuttings struck very early in the spring, and highly cultivated, will fruit the same autumn, but not produce a full crop.

Soil.—A somewhat light and generous soil is best. The following is an excellent compost:—Decomposed, mellow, turfy loam, two parts; old leaf-soil, two parts; heath-soil, one part; and sand, one part.

Culture in Growing Period.—*P. quadrangula'ris* requires a greater heat than *P. edulis*—in fact, a heat equivalent to the Pine stove; whilst *P. edulis* will succeed well in an ordinary vinery. Bottom-heat is most essential, especially for the *P. quadrangula'ris*; and, indeed, in this, and a generous soil, consists the chief secret of successful culture. No place can exceed the corner of the bark-bed for the culture of either, provided they can ramble freely overhead, unshaded by vines or other creepers; for light is also essential. The corner of the bark-bed must be separated by bricks, pigeon-holed; a triangular space, which will hold a wheelbarrow of soil, will suffice, putting some bricks below for drainage. The shoots must be carried up to within a foot or so of the roof, and may then be trained in any way most convenient. The *P. edulis* will produce many branches; these must be kept thinned out, after the manner of Melons; but no stopping is requisite. The *P. quadrangula'ris* does not so soon crowd itself with spray; nevertheless, it will at times require thinning out. Liberal waterings must be given, and it must be remembered that

the roots will extend through the pigeon-holes into the bark-bed, and will principally follow the side of the pit walls. The most important matter, however, is the artificial impregnation of the blossoms; for they will seldom "set" without it. The following is Mr. Appleby's mode of setting *P. quadrangula'ris*:—The whole of the calyx, corolla, and crown must be cut off with a sharp pair of pointed scissors; and this must be done without injuring the flower-stem. When all these are cut away, there only remains the essential parts of the flower; the stamens, five in number, and the three stigmas. Then cut off one or more of the stamens bearing the anthers; and do this without shaking the dust or pollen out of the anthers; then touch each stigma with the anther, covering them with the fertilizing powder. Take an opportunity of performing this operation early in the morning, at the very time when the anthers are observed to be bursting. So far Mr. Appleby is, doubtless, right as concerns the *P. quadrangula'ris*, which has an exceedingly succulent calyx, and other appurtenances; but we never took any further pains with *P. edulis* than to look over the plants every day about noon; and whatever blossoms might be out, to pluck one of the anthers from it, and touch the face of the stigmas with it. By these means they generally become impregnated.

Culture in Rest Period.—As soon as the bearing season is over, towards October, the plants will sink to rest, and this may be facilitated by withholding water entirely. They will now become partially deciduous, and this will induce a ripeness in the shoots; and in the following February they may be pruned, cutting back all spongy and immature growths.

Fruit.—It is used in the dessert, and is capable of being kept for a fortnight or so in a fruit-room, or other place, if perfectly dry.

Insects.—We have known the Red Spider to attack the *P. quadrangula'ris*. For remedy, see ACARUS.

GRANGE'RIA. (Named from *N. Granger*, a traveller in Egypt and Persia. Nat. ord., *Chrysobalanus* [*Crysobalanaceæ*]. Linn., 11—*Dodecandria* 1—*Monogynia*.)

Stove evergreen tree. Cuttings of ripe shoots in sandy soil, in heat, under a glass; peat and loam. Summer temp., 60° to 85°; winter, 55° to 60°.

G. Borbo'nia (Bourbon). 40. White. Bourbon. 1823.

GRAPE HYACINTH. *Musca'ri*.

GRAPE PEAR. *Amela'nicher botryd'pium*.

GRAPE VINE. *Vitis vini'fera*.

Varieties for Walls.—1, August Muscat. 2, Early Black July. 3, Miller's Burgundy. 4, Esperione. 5, Hâtif di Gènes. 6, Royal Muscadine, White. 7, Royal Muscadine, Black. 8, Sweet Water, White Dutch. 9, Sweet Water, Black. 10, Black Hamburg. 11, Black Prince. 12, Claret. 13, Verdelho. 14, Pitmaston White Cluster. 15, Lashmar's Seedling.

As superior kinds for a pretty good climate and aspect, we recommend Nos. 2, 4, 6, 8, 10, 11; as kinds for inferior aspects, Nos. 2, 6, 10, 14.

For Greenhouse.—1, Black Hamburg. 2, Black Damascus. 3, Black Prince. 4, West's St. Peter's. 5, Royal Muscadine. 6, Dutch Sweet Water. 7, Chasselas Musqué. 8, Esperione. Of these, Nos. 1, 3, 5, 6, are the most to be relied on.

For Stove.—1, Muscat of Alexandria. 2, Cannon Hall Muscat. 3, White Frontignan. 4, Black Frontignan. 5, Black Hamburg. 6, Black Damson. 7, Royal Muscadine. 8, Dutch Sweet Water. 9, Chasselas Musqué. 10, West's St. Peter's. 11, Charlesworth Tokay. 12, Black Barbarossa. Of these, Nos. 1, 2, 3, 4, 11, are kinds of superior merit, and require much heat. No. 7, 8, at the warmest end, will be exceedingly early. Nos. 5, 6, 9, 10, will provide for a succession. Of No. 12, we at present have no experience: it is stated to be a very long keeper, and is highly recommended.

Propagation.—*Layering* has almost fallen into disuse, their culture from eyes or single buds having superseded it. Layers will root either from the growing shoot, or from young wood layered in a state of rest. The latter operation is performed any time from November to the beginning of March, and no tongue or slit is requisite. Most of the Vines, in former days, were raised in this way; the nurserymen having old plants, or stocks for the purpose, around which the shoots were layered in pots, generally in February, and they made saleable plants by the autumn. Layering of the growing shoot is a more delicate procedure, and it is well to introduce a portion of the previous year's wood where possible.

Cuttings are best made from shoots in the rest state, and may either be made

short or long. Speechly recommends two inches of the two year old, and one bud or eye of the new. These were inserted perpendicularly in pots, the bud just level with the surface. They will, however, strike root from thick shoots, of three or four years old, of a greater length, and these may, if necessary, be planted at once in the border; or if in pots, deep ones must be used, and the cutting may be sloped or bent. In all these cases, the cuttings must be buried nearly their whole length beneath the surface. Bottom-heat will facilitate speedy rooting.

Eyes.—This is the most approved plan, for the plant thus approaches nearest to a seedling state. These are generally planted in pots, a single eye in each, at the end of January, and plunged in a bottom-heat of from 70° to 80°. Prunings are reserved for this purpose in the autumn, and these being cut in convenient lengths, are imbedded in moist soil until winter. About half an inch of wood may be reserved above the eye, cutting it sloping away from the bud, and about an inch or so below the bud; the latter section made horizontally. These, inserted singly in five-inch pots, may be plunged in a bottom-heat of from 70° to 80°, and care must be taken that the worms do not get into the soil. When grown nearly a foot in height, they should be re-potted into pots of about seven inches diameter, using a rich, turfy soil, and draining thoroughly. Many good gardeners reserve a portion of the two years old wood at the base of each eye, and there can be little doubt that it is good practice.

Coils.—Obtain prunings from healthy and fruitful vines on the rod system; these prunings should be from two to four feet in length. Such being plunged in a bottom-heat of from 70° to 80°, and in an atmosphere ranging from 50° to 60°, have a tendency to produce roots before shoots; and this is the object sought. Fruiting-pots of twelve to fifteen inches in diameter should be used, and a compost of turfy loam and half-rotten manure, with the addition of charred material, lime-rubbish, or sand; any or all of them added in the proportion of a sixth of the mass, in order to insure the free passage of moisture. Thorough drainage being secured, the end of the shoot is pressed down against the bottom of the pot, and the shoot bent round,

until as many coils or turns as possible are made; leaving, at last, four or five stout eyes above the level of the pot rim. The pot is then filled with the compost, and careful watering, a judicious control of heat, augmenting the amount of atmospheric warmth as the leaves unfold, together with the usual routine of stopping, thinning the berries, &c., as applied to established vines, must be carried out. The turfy compost is filled in as the coiling proceeds.

Grafting is not often practised. As in most other cases of grafting, the stock should be slightly in advance of the scion. Perhaps the stock should have unfolded a few large leaves before the operation is practised. Then the usual whip grafting is the best plan. A couple of eyes on the graft are sufficient. It is good practice to bind moss round the whole at last, even shading the buds of the scion for a while. The moss may be moistened daily.

Inarching.—This may be performed with either the growing shoot, or with that in a rest state. A plant established in a pot of the kind to be introduced must be procured. With regard to inarching in a rest state, it is proper that the sap should be in motion at the period of operating, and that the stock, if possible, should, as in grafting, be slightly in advance of the scion. Vines which are breaking are in an eligible state, and the kind to be inarched may be just emerging from a rest state. The point of junction being determined, the pot must be so fixed as that no slipping can occur, and that the shoot may be readily bent to meet the parent plant. Nothing is necessary but to pare a thin slice of bark with a little of the wood from the facings of the scion and stock, which are to be fitted, and then to bind them carefully together close, but not too tight, just as in ordinary grafting. A little moss may be fastened round the point of junction, and this frequently moistened. Inarching of the growing shoot is, however, the best practice; but, it is an operation that requires nice handling. The shoot of the stock is best at about the middle of its annual growth, when it has begun to acquire some solidity and toughness. The scion may be somewhat younger, and everything being adjusted, a section must be made in each, as before, cutting through the bark and a little into the alburnous matter, and

fitting them nicely together. It may be observed, that the ligature must not be so tight as in the old wood. The whole may be covered with moss, and in six weeks the junction will be complete. In the mean time a progressive stopping of the spray on the stock must take place, in order, by degrees, to transfer a portion of the luxuriance of the stock to the scion. When the pruning season arrives, the stock may be cut back in part or wholly. Thus, a vinery possessing inferior kinds may be renovated in a very short period.

Seed.—Perfectly ripe grapes of the kinds intended to be propagated from should be pressed, the seeds washed and thoroughly dried, and then secured, like other seeds, until the following February. They may then be sown in well-drained pots, in a light, rich soil, rather sandy, and plunged in a bottom-heat of from 70° to 80°. In about a month they will vegetate; the seedlings may be potted off, and henceforward reared as plants from eyes, continuing bottom-warmth until Midsummer, and training the shoot (unstopped) fully to the light in a warm situation. They may, in the autumn, be cut back to two or three eyes, and grown through the following summer as before, again pruning back in the autumn. In about four years they will fruit on their own roots; but, perhaps, a year will be gained by inarching them near the extremity of a sound and fruitful old vine.

Wall Culture.—The first essential is a mellow and thoroughly-drained soil. An ordinary sandy loam is the best staple; but almost any common garden-soil will suit, if it is capable of receiving and transmitting moisture with facility. Vine roots will descend to a considerable depth if the soil be mellow; but we would rather grant them extra width, especially if the situation is not particularly favourable. Whether borders, or, what are much more economical, stations, are made, we would first thoroughly drain the site, and then place some imperishable material, as stone, brick, or clinkers rammed close beneath them, leaving only half a yard of soil in depth, unless the roots are securely limited in width. This done, the natural soil must be examined with practical accuracy, and accordingly, as sand or clay predominates, so must be the amount and character of the correcting material. If destitute of organic

matter or turfy fibre, something must be introduced to enrich it, such as fresh manure, and abundance of rotten weeds, leaves, &c., indeed, anything of a decaying vegetable kind; remembering that a good portion must be such as will endure long, and slowly give out its enriching qualities. Some coarse bone-manure and rubbly charcoal will be a capital addition; and a good deal of charcoal-rubbish or brush-wood. If the situation is cool and damp, place half the volume of this material above the ordinary ground level.

Planting.—The end of March is the most eligible time; and strong plants being at hand, if in pots, let the soil be shaken away gently, and every root be carefully uncoiled, and spread out, like a tree fan-trained, and place a little superior compost about the roots, covering the surface with three inches of coarse charred material. This will absorb a great amount of heat from the sun, and admit water freely when necessary. As the plants grow, they must be carefully trained, and no stopping practised the first season. In the autumn, however they must be pruned back to three or four eyes; and in the next season the shoots from these eyes must be trained to the desired form, which will be regulated by the character of the space they are to occupy, whether on a building or a wall.

Out-door Culture during the Rest Period.—Pruning is a first consideration, and this is done soon after the fall of the leaf. Many conflicting practices, as to out-door culture, have competed for the palm of victory here, even as with in-door vines; but it is probably best not to attempt to tie the hands of those who try their culture by too severe rules. One safe maxim is, that no two of the principal leaves should so overlap each other as to obstruct the solar light. From about eight to ten inches, therefore, at least, may be given between each of the growing shoots. This, then, will be a guide as to the distance at which the shoots should be trained. As for root culture at this period, nothing will be needed but to preserve the surface fibres from the spade, which is but too apt to approach too close to those on kitchen-garden walls. When vines become somewhat exhausted with much bearing, top-dressings of good soil and manure become necessary.

Out-door Culture during Growth.—We

must here be brief, for the main principles will be found somewhat identical with those connected with in-door culture. All superfluous young spray must be thinned away, and the bearing shoots stopped an eye or two beyond the bunch. Where, however, there is walling to be filled, the dresser may leave several eyes or buds beyond the bunch. In due time the bunches must be thinned; one to a square foot of wall will, in general, suffice. The berries, too, must be thinned out at the proper period, and a frequent stopping of the lateral shoots practised, never suffering them to shade the principal leaves. Towards the beginning of September, all the stopped laterals may be entirely removed, in order to permit a free circulation of air, and allow the sun to heat the wall; protection, also, must be afforded to the bunches against wasps, flies, &c.

Greenhouse Culture.—Having attended to the character of the soil requisite for the vine, we have little to report on the subject of border-making, which must, however, be at all times considered the most important point in the whole of the proceedings. A more generous soil is necessary for in-door vines, inasmuch as a greater demand exists at times on their vital powers through the powerful effects of solar light beneath glass; as also owing to a greater amount of dryness at times in the atmosphere. The first point is to elevate the border above the ground level in proportion to the lowness, coldness, or dampness of the situation. Thorough drainage we have before pointed to; it is not possible to drain too much if the soil be of proper texture. As to soil, turfy loam, inclining to sand, should form nearly one-half the volume of soil. To this may be added one quarter part of coarse manure, leaf-mould, &c., rather raw than otherwise; and the other quarter, part of rubbly and imperishable materials, such as lumpy charcoal, old plaster, and the rubbish of old buildings, coarse bone-manure, &c. All these well blended, and filled in when dry, will produce a first-rate compost, taking care to place a layer of turf at the bottom.

Course of Culture.—Whatever combination exists as to a greenhouse vinery, whether it be for vines alone or used in conjunction for pot-plants, an uniform system should be pursued as to the vines, both during the growing season and

the rest period. This system consists in the regular pruning, dressing of the wood, in order to the extirpation of all insects, and the usual vine-dressing during the growing period, the latter being, disbudding, stopping, thinning the berry, and training—principles applicable to the vine in all its positions.

Stove Culture.—Vines in stoves are generally combined with pine culture, and the excitement by heat is, therefore, at times considerable. In former days it was supposed that vines must be turned outside the house and frozen, in order to restore their energies; but abundant proofs exist that from 50° to 55° may be submitted to, in extreme cases, during the rest season. Whatever culture is combined with that of the vines, it is best to confine these to the rafters on the spurring system. For early forcing, and where the house is specially devoted to vines, it is another affair: here either the long-rod system or the spurring may be used. We need not repeat advice as to border-making, and the usual routine of disbudding, stopping, thinning the berry, and the frequent pinching of the laterals. One remark may be permitted as to borders; let them be *inside* the house if the interior arrangement will permit, and the front wall on arches. When at rest, we would not allow the thermometer to sink below 35°.

Vines in Pots is a mode of culture only to be recommended as an adjunct to late vineries, and where the possessor, not desiring to build a house for early forcing, yet desires to have a few early grapes. The plants should be reared from eyes, and receive very high culture; and at the end of the second summer they should be strong canes, and in high perfection for forcing. They must receive liberal shifts when they need re-potting, and their shoots be constantly trained in a very light situation. The young plants, at the end of the first season's growth, will require pruning back to two buds, from which one may, during their progress, be carefully trained, and the other removed. When the cane has grown about five feet in length, during the second season, it is well to stop it, in order to strengthen the lower leaves, on the healthy action of which the future crop depends. The leader, however, which succeeds, may be laid in full length, well exposed to the light; but the laterals

which push from the sides must be pinched back, leaving one bud only, and this pinching must be continued all through the season, when necessary. In the second autumn they will be strong canes, with remarkably plump buds; and they may now, when the leaves are decayed, be pruned back to some five or six eyes, according to the wish of the cultivator. Having received their final shift into pots of about fifteen inches in diameter in the preceding June, they will require nothing but a rich top-dressing. They enjoy a bottom-heat of 70° to 80°; but they may be made to succeed on the kerb-stones or back shelves of the stove, away from cold draughts, and near the flues or piping. Liquid-manure must be liberally supplied, and the same course of culture as to disbudding, stopping, thinning the berry, and training, pursued as with the rafter vines. A rich, turfy loam must be used as compost; three parts of this to one of rich, half-decomposed manure, will be found excellent, adding some charcoal and a little lime-rubbish. The turfy loam should be nearly a year old, and must be well chopped with the spade, not sifted. The pots must be most carefully drained nearly one-fifth of their depth: any stagnation whatever will surely prove fatal. If the pots were unplunged, some screen, such as moss or old matting, should be interposed between them and the sand, or they may have double pots.

Diseases.—*Shrivelling* of the berries of the grape in stoves appears to arise from the roots of the vine not supplying a sufficiency of sap, as well as from its not being duly elaborated in the leaves. This occurs if the roots are in a cold soil, or are vegetating in an outside border, the temperature of which is too low compared with that of the stove. In the first case, thorough draining and the incorporation of calcareous rubbish, and in the second case, protection to the border and stem, will remove the evil. If the sap be not duly elaborated, it must arise, either separately or conjointly, from the leaves vegetating in an ungenial atmosphere, or from their being too reduced in number.

If the roots of the vines are found to have penetrated the soil deeply, they should be lifted very carefully, brickbats placed beneath the roots, and these trained about nine inches beneath the

surface. If drainage of the border has been neglected, let it be effected at the same time. If the loss of the crop which would be occasioned by the lifting of the whole of the vines would be inconvenient, only one or two can be so treated in successive autumns. The most injurious time for an unnatural disparity of temperature in the air and soil to occur is at night; for, as was justly observed by the late Mr. Knight, an ill effect of high temperature during the night is, that it exhausts the excitability of the tree much more rapidly than it promotes the growth or accelerates the maturity of the fruit, which is, in consequence, ill supplied with nutriment at the period of its ripening, when most nutriment is probably wanted. The Muscat of Alexandria, and other late grapes, are, owing to this cause, often seen to wither upon the bunch in a very imperfect state of maturity; and the want of richness and flavour in other forced fruit is often attributable to the same cause. The Frontignans are among the varieties apt to shrivel under great disparity of temperature between the roots and branches.

Somewhat allied in its causes to shrivelling is that unsightly imperfection where the berries do not come to maturity at the point of the bunches, leaving from five to ten quite colourless and sour, though others on the same bunch are fine and large. In such case the remedies are to give more heat and air, keeping the border warmer than before, and to avoid cold damps in the house: leave as much foliage as can be exposed fully to light. The leaves removed must be by little at a time. In thinning, clip off a few berries at the lower extremity of the bunch; the rest will swell better.

Shanking is an ulceration, or gangrene, attacking the footstalks of the bunches, and appears to be occasioned, like shrivelling, by the temperature of the soil being too much below that in which the branches are vegetating; and, consequently, the supply of sap to the grapes is much diminished, and the parts which thus fail of support immediately begin to decay. This is an effect always the consequence of a diminished supply of sap, apparent either in the leaves, flower, or fruit. The disease, like every other putrefaction, does not advance rapidly unless there be much moisture in the atmosphere.

The coldness of the soil causes this

torpidity in the action of the root; and this, perhaps, at the very period when the greatest demand is made upon it to sustain the excessive perspiration which is going on in the leaf, and to furnish fresh matter for elaboration, to both which ends it is frequently quite inadequate, owing to drenching rains. If the young fibre be examined at such inclement periods, it will be found somewhat discoloured, and, in some cases, quite rotten. *Shanking*, we conceive, is generally caused by the unnatural disagreement of temperature between the root and top, independent, in the main, of the question of moisture. It generally occurs with vines which have been somewhat forced; seldom on open walls—seldom with vines forced in pots or tubs. The obvious prevention of shanking is securing a congenial relative temperature to the roots and foliage.

Rust comes upon the berries in the form of a rough, rusty appearance of their skins, which have, in fact, become thick and indurated. Some think it arises from their being handled, or the hair of the head touching them; but the disease is often too general to admit of this topical explanation. We believe it to arise from an over-heating of the vinery, however unintentional, whilst the grapes were young, and thus tending to force them to a premature rapidity of growth. Any excessive pressure upon the cuticle, whether from within or from without, causes its thickening. This considerable elevation being succeeded by a sudden reduction of temperature, will almost certainly induce the disease.

The Spot affecting the berries seems to be the same disease as shanking, only affecting a different part. Like this disease, it is a gangrene, and is probably occasioned by an irregularity in the supply of moisture and vicissitudes of temperature, but especially if one of the extremes is much below the degree of heat most favourable to the healthy growth of that plant. Muscats are particularly liable to the spot. Our opinion that sudden vicissitudes of temperature are the causes of this disease, seems to be well sustained by the fact, that the parts nearest the glass, that is, the upper portions of the bunches, and those parts most exposed to the sun's influence, are the first to suffer; and this, also, goes far towards substantiating the assertion, that the

shade of the foliage is necessary to the well-doing of grapes.

Want of Colour is often a defect of the Black Grape, but not at all necessarily arising from deficient light. The green colour of leaves depends entirely upon the presence either of light or of uncombined hydrogen gas; but vegetable reds, purples, and other colouring matters of fruits are formed, though less intense, even in a total absence from light. So far from full exposure to light being requisite for the full colouring and ripening of grapes, they never attain these desired qualities so well as when shaded by one thickness of leaf. The colouring matter of all fruit is dependent partly upon the leaves immediately above it, and partly upon the fruit itself, the necessary digestion of the sap being commenced in the one and perfected in the other. If this digestion or elaboration of the sap is checked by ungenial temperature, but more particularly if the crop is too heavy for the vine, or if the leaves, especially above the bunches, are too much thinned, defect of colour will be the very usual consequence to the berries. We have seen the blackest of berries in situations where the sun had never shone on them since they blossomed; indeed, it only requires a little close observation for one season to dispel such a fallacy. It sometimes, however, happens, that the principle leaves on the same shoot with the bunch are shaded by other main leaves, or by laterals. Such shading is sure to be prejudicial to the colouring of the berry, as well as to the maturation of the buds connected with the shaded leaves. And here we have one of the reasons for such close stopping as the vine is subjected to. Over-cropping alone will lead to bad colouring; indeed, is one of the most fruitful sources of it. It exhausts the tree of every particle of prepared sap, and produces debility in the root, which renders it readily susceptible to the stagnating rains of an unpropitious season.

In order to promote good colouring, the ripening process should not be hurried. It is evident that very high temperatures are not required for this purpose, for the Black Hamburgh, on common walls, is not deficient in colour, in a good season. Now, the colouring process, in the latter case, occurs in the end of September, when the temperature at night must sometimes be near the freezing

point. It is a common observation of practical men, that the cold nights of autumn hasten maturity in many crops; and this is undoubtedly a fact, and traceable, we presume, to a cessation of the growing principle, causing thereby a concentration of the energies of the plant. We would say, therefore, beware of too high a temperature during the colouring process, unless accompanied with much solar light, and even then avoid extremes. We would more especially avoid night heat at this period, and would promote a circulation of air night and day.

Bleeding.—This only occurs to the vine from the unhealed surfaces of cuts made after the sap has commenced its motion, and before the leaves are well expanded. A red-hot iron, applied to the bleeding surface until it be charred, will stop the effusion of sap for a time, if not permanently; and to effect a complete stoppage at once, coat the charred surface, and rub well into it a paste made of lime newly burnt and grease. This hardens and forms an effectual plaister.

Mr. Knight's plaister we know to be effectual, and is thus composed:—

One-fourth of calcined oyster-shells, beaten to fine powder in a mortar, and three-fourths of cheese, worked together, until they form a sort of paste. This mixture, pressed into the pores of the wood, either with the thumb or any other means, will effectually stop the flow of the sap: sometimes a repetition may be necessary, if it is not well forced into the pores. See MILDEW.

Insects.—See ACARUS, APHIS, COCCUS, CURCULIO, and THRIPS.

GRAPTOPHYLLUM. (From *grapho*, to write, and *phyllon*, a leaf; referring to the markings on the leaves. Nat. ord., *Acanthads* [Acanthaceæ]. Linn., 2-*Diandria* 1-*Monogynia*. Allied to *Beloperone*.)

Stove evergreen shrub. Cuttings of young shoots, just getting a little firm, and a heel of the older wood at its base, in sand, under a bell-glass, in heat; peat and loam. Summer temp., 55° to 75°; winter, 50° to 55°.

G. hortense album (garden white). Crimson. July. E. Ind. 1815.

GRASSES for lawns and grass-plots must be varied according to the nature of the soil, and we know of no more judicious selections than the following, recommended by Messrs. Lawson, of Edinburgh:—

	Light Soil.	Medium Soil.	Heavy Soil.
<i>Avena flavescens</i> (Yellowish Oat Grass)	lbs. 1	—	—
<i>Cynosurus cristatus</i> (Crested Dog's Tail)	5	6	7
<i>Festuca duriuscula</i> (Hardish Fescue)	8	3	4
<i>Festuca tenuifolia</i> (Fine-leaved Fescue)	2	2	1
<i>Lolium perenne tenue</i> (Fine Rye Grass)	20	20	20
<i>Poa nemoralis</i> (Wood Meadow Grass)	1½	1½	2
<i>Poa nemoralis sempervirens</i> (Evergreen Ditto)	1½	1½	2
<i>Poa trivialis</i> (Rough-stalked Meadow Grass)	1½	1½	2
<i>Trifolium repens</i> (White Clover)	7	7	7
<i>Trifolium minus</i> (Smaller Yellow Clover)	2	2	1

The above mixtures are enough for an acre. Where the ground is overshadowed with trees, both the kinds of *Festuca* should be omitted, and similar quantities of the two kinds of *Poa nemoralis* substituted. The best time for sowing is early in the spring.

GRASS-PLOT, correctly speaking, is a parterre, or bed of flowers, arranged with grass-turf between them, instead of gravel. It is usually confounded with LAWN, which see.

GRATIOLA. Hedge Hyssop. (From *gracia*, grace; referring to its medicinal virtues. Nat. ord., *Figworts* [Scrophulariaceæ]. Linn., 2-*Diandria* 1-*Monogynia*. Allied to *Mimulus*.)

Hardy herbaceous plants. Division of the plants in spring; rich, moist soil. *Latifolia* and *tetrago'na* require the protection of a frame in winter. *G. aurea* (golden). ½. Yellow. June. N. Amer. 1820.

— *latifolia* (broad-leaved). 1. White. July. N. Holland. 1822.

— *megalo'carpa* (large-fruited). Pale yellow. July. N. Amer. 1828.

— *officinalis* (common-shop). 1. Light blue. July. Europe. 1568.

— *pilo'sa* (hairy). White. July. N. Amer. 1827.

— *quadridenta'ta* (four-toothed). ½. White. June. N. Amer. 1821.

— *tetrago'na* (square-stemmed). 1. Blue. August. Buenos Ayres. 1830.

— *Virginica* (Virginian). 1. Yellow. August. Virginia. 1759.

GRAVEL WALKS, like all other walks, require a good substratum of drainage, and the facing about five inches deep of gravel. It must have no stones mixed with it larger than good-sized marbles, and about one-fourth of it must be much finer to fill the interstices. Pit-gravel, with a slight admixture of clay, and the

more rubbly the better, is the best for binding and forming a solid walk. The more speedily it is laid down after digging from the pit, the more firmly will it bind.

The following is an excellent plan to make or turn gravel walks in dry weather: If of a sandy or gravelly nature, strew a little clay or marl upon the walk. When turned over, take away the large stones and place them at the bottom of the soil. Immediately after you level your walk, apply your iron roller steadily, and let a labourer follow the roller, pouring upon it water regularly as it passes over the ground; in twenty-four hours after, if the weather is dry, it will be as solid as a stone-floor.

The best method of extirpating grass from a gravel walk, is to spread salt in considerable quantities over its whole surface; and if, after the first application, it is found that portions of the ground still exist, let another coating of salt be applied, which will effectually destroy it. Care must be taken, however, if the walk is edged with box, that the salt does not come in contact with it, otherwise it will destroy the edging also.

In the early part of April, gravel walks are usually turned. After the walk has been broken up and levelled, and a facing of new gravel spread over, this ought to be left for three or four days, and until a shower of rain has fallen, before the roller is used. This bleaches the gravel, and washes down the fine particles, so that, immediately after rolling, the walk is solid, and has a clean, bright surface.

The above directions relate to the old system of gravel-walk making; but we strongly recommend the general adoption of CONCRETE WALKS, which see. They are far more durable, and free from weeds.

GREAT BURNET. *Sanguis-orba*.

GREAT CENTAU'REA. *Centau'rea centa'rium*.

GREENHOUSE. This is a light, airy structure designed for plants which can sustain a lowish temperature, but cannot withstand the vicissitudes from frost to sunshine, and from damp to dry, of our common winters. It is distinguished from a plant-stove in requiring but little artificial heat; and from a conservatory in having all the plants (with, perhaps, the exception of climbers for the rafters) grown in portable pots or tubs, and these

generally set upon a stage to bring them nearer the glass.

The mode of *constructing* such a house must be regulated by the wishes of the proprietor, and the conveniences at his disposal. For general purposes any aspect will do in an emergency, except the north, and that might be selected for those plants that delight in the shade. The more command of light, with the means at hand of reducing its fierceness and heat when too powerful, the better. From due south to south-east and south-west may be considered the best aspects. If it is a lean-to house, having a sloping roof from a back wall, it should always have a considerable amount of upright glass in front to receive the oblique rays of the sun in winter. By the side of a cottage *ornée* the front of the house may thus partake of the same style of architecture, while the shed-like, sloping roof may be exchanged for a ridge-and-furrow one, and that concealed from external observation by a light entablature or frieze work. For a neat detached structure it should stand, less or more, north and south, have a ridge-and-furrow roof, and means for breaking the sun's rays in the morning and afternoon. We are supposing it to be glass all round. When in connexion with other buildings a very useful and elegant house is formed, having the front and ends of glass, a hipped roof, and an opaque back wall. Here, likewise, by an ornamental entablature, the roof, if desirable, may be wholly or partially concealed, so as not to interfere with architectural propriety, though we should have no great scruples on this score, as the utility of an object, if apparent, gives its appropriateness.

The size of the *glass* to be used must depend upon the taste and the money wished to be spent by the proprietor. For the roof, especially, it will be desirable to have it at least sixteen ounces to the foot. Small squares can be procured in boxes very cheap; but what you gain in glass you partly lose from requiring so many sash-bars. We should not care about having them much above eighteen inches in length. All things considered, if we were to roof a house most economically, we should obtain strong machinery-cut sash-bars, dispense with rafters, use glass from fifteen to eighteen inches wide, and say a foot in depth, and secure means of ventilation without touching the roof by

the upright glass and wooden ventilators at the ridge in the roof and in the back wall.

Stages.—These are generally shelves, arranged in stair-like fashion, partaking less or more of the character of the roof. For a general collection, the stage may be from five to six feet from the glass roof; for insuring dwarf, compact, bushy plants, the distance should be from three to four feet. The lowest shelf of the stage should be a little higher than the shelf that surrounds the house next the front glass. Where the roof is *hipped*, even though the back wall be opaque, if the house faces the south the stage should be *hipped* too, terminating in a single shelf, broad or narrow in the centre. The north part would be admirable for *keeping* many plants in winter, and exhibiting in summer those that were in full bloom. In a wide house it is always preferable to have several stages, in the shape of circles, ovals, or triangles, which ever is most approved, with walks between them. The expense, and the room apparently lost, are more than compensated by the ease with which all the plants may be examined, and the greater thickness with which they may be safely set, as the pathway will be so many breathing zones. (*See FLOWER STAGES.*) For low-hipped, roofed, and ridge-and-furrow roofed houses, flat, table-like, trellised stages will be the best; the highest plants being set in the centre, or, if necessary, one being placed now and then on a pot. As an improvement on this, where extreme economy was the object, we would dispense with the wooden trellis, and substitute a bed of earth, kept in its place by brick walls, the earth being first covered with cinders, and then with pure sand, on which to set the pots. The damping of this sand from watering in summer would be a source of health to the plants, and save them from many visitations. Small inclosures in such an earth-pit, if suitable compost were used, would be excellent for the less hardy creepers, which would be likely to maintain a lingering existence if planted, as they sometimes are, in a border close to the front wall.

Temperature.—If merely preserving the plants is the object, then artificial heat may only be applied to maintain a temperature of from 35° to 40°. This low temperature must not, however, be

long continued in a stagnant atmosphere. It will, therefore, be necessary to raise the temperature to admit air during the day. Where it is desired slowly to grow the shoots, and to keep a winter display of plants in bloom, the temperature must not sink below 45°. In either case a rise of 10° or 15° may be allowed for sunshine in winter. In summer, the chief difficulty will be to keep the house cool by admitting all the air possible, and having it on night and day. If the plants are turned out into pits and shady places, and even very sunny places if their nature requires it, and their place is supplied with tender annuals, &c., then more closeness and moisture must be obtained—a limitation of air and plenty of moisture giving all the essentials of a plant stove.

Artificial Heat.—The best, because the most equal and the cleanest, is hot water; and the simplest of all contrivances is the best: a compact little boiler, well set, and a flow and return pipe on the simplest principles. A small boiler and two or three-inch pipes are the most suitable for a greenhouse where only quick and occasional fires are wanted. Flues are far from being despicable conveniences. In some respects, in small houses where a higher temperature is wanted at one end than another, they answer better than hot water. When neatly built they are no eye-sore in a house. To insure draught the flue should be at least a third deeper than it is wide, and the mouth of the flue should be eighteen inches above the bottom of the surface. For greenhouses, one foot of four-inch pipe will be necessary for every forty cubic feet of air making allowance, less or more, according to the surface of glass, or the presence of opaque walls; or, in other words, taking the square foot of glass, it would require a foot of four-inch pipe for every six feet of glass; or a foot of a common flue above the ground for about ten or eleven feet of glass.

Ventilation.—Means should be secured for a thorough circulation of air from the sashes in front, and the highest point in the roof, as there the heat will generally be the greatest. In cold weather in winter, unless there are means for heating the air before it enters, the little given should be at the top of the house, as thus the cold, dry air would be heated and absorb the moisture before reaching

the bulk of the plants. When the air is very dry, and the weather very cold, the less air that is given the better. In such circumstances, the heating medium should be cool before the sun strikes upon the house, and then the sun-heat will raise the house the less; and 10° or 20° for a short time, from sun-heat, is a very different affair from having that increase from artificial means. For greenhouse plants, generally, in favourable weather, too much air cannot be given, night or day, from the middle of May to the middle of September. For two months preceding May, and subsequent to September, air should be given early in the morning, even if it should be withdrawn or reduced soon afterwards, or early in the afternoon. In winter, unless the air is very mild, it will be time enough to give air by ten o'clock, and shut up between two and three. When the weather is very severe, one hour, or even less, in the middle of the day must be sufficient. In dull, close weather, air should be given, though a brisk fire should be put on during the day on purpose. When, however, the greenhouse is changed into a vinery, a place for growing tender annuals, &c., the forwarding of the growth of Camellias, Epacris, Azaleas, &c., then the temperature in spring and summer must be higher, and the atmosphere closer and moister. By means of divisions, you may have almost as many temperatures and atmospheres in one house as you please, by regulating the ventilation of the different compartments. Slight wooden moveable divisions we find extremely useful in pots, as we can then give a peculiar treatment to one or any number of lights at pleasure.

Firing.—The heat from the furnace merely extends vegetable tissues; that from the sun expands and concentrates them. No stoker should visit his furnace without knowing the temperature of his house, the temperature of the external atmosphere, the direction of the wind, and the changes that have taken place in a certain number of hours, and thence calculate what will be the most likely to happen. The minimum temperature should never be exceeded by fire-heat during the night. More than sufficient is not only waste, the plants are drawn and dried, while less advantage can be taken of the glorious light and heat which come from the sun. For dispersing damps, &c., use a brisk little fire

during the day, and allow it to go out. In very dull, close weather in winter, such a fire often, if even for an hour, would be useful; not for heat, but for enabling us to give more air, and causing a rapid circulation among the plants.

Watering.—The rule is, water so as to reach every fibre of the plant's roots, and then wait until a similar repetition is necessary. A plant may want watering twice a day in summer, and, perhaps, only twice a month in dull weather in winter. From the end of September to the middle of May, let the temperature of the water used be from 5° to 10° higher than the minimum temperature of the house. From the periods mentioned, making, of course, due allowance for peculiar weather, watering should be performed in the morning; in cold weather not too early. Thus the stimulus of sun-heat, diminished though it be, meets the plants when they have received their refresher; the extra moisture is parted with before the evening comes; and there is not that rapid cooling of the soil by evaporation during the night. In the summer we reverse the time of watering, and perform the operation in the afternoon and evening. Anything that tends to cool the soil and the plant is then refreshing. By watering in a bright morning, the moisture is exhaled rapidly from the soil, as well as through the foliage of the plant, which does not, in consequence, receive the full benefit of the watering, and, therefore, soon requires a fresh supply. In the evening the evaporating tendencies are approaching the minimum; the plant has full time to absorb and refresh itself, and thus is more able to stand the brunt of the following day.

Manure Watering.—This should be applied often, but weak and clear; a little quick-lime added will effect the clearing, at the expense of driving off a portion of the ammonia. It is applicable in almost any case where luxuriance of plant is the chief object; where size of bloom and compact, rather than slender, growth, are the desideratum, it should not be applied until the flower-buds appear.

Syringing.—This is a most valuable mode of applying water, as it promotes cleanliness, and is as necessary for removing dust and incrustations from the foliage as soap and water are for cleaning our own skins. In winter it should be done at mid-day, when the sun shines;

in spring and autumn, in the morning; in summer, chiefly in the evening, though at that season we frequently give them a dash several times a day.

Pruning.—This is generally done when the plant has finished flowering—when we wish it to start into fresh growth. Of course there are exceptions; without these exceptions the nature of a plant and the mode of its growth must be the basis for a system of pruning. For instance, we cut down the flowering shoots of an *Epacris* and a *Pelargonium*; but we act very differently both before and after in the two cases. The *Epacris* is hard-wooded, and, if tolerably ripened, it requires no preparation. The long branches of most kinds are cut in at once, and the plant is then transferred to a closer and warmer atmosphere, to encourage the formation of new shoots. A cold pit, kept close, is the thing; some people, with great success, keep them a couple of months in a plant stove. Of course they are duly hardened, and the wood ripened by autumn. On the other hand, the stems of the *Geranium* are soft and spongy; if a very valuable kind, this will have been increased by shading, to preserve the colour of the flower. The plant altogether is at a minimum as respects its possession of organisable material; while, for the sake of the old plant to be kept, and the cuttings for seed from its stems, it is desirable it should be at the maximum. The plants are, therefore, exposed fully to the sun; not a drop more water is given than just to keep the leaves from flagging; and the stems, instead of being soft and green, become hard and brown, by parting with their watery evaporations, and assimilating fresh solid material. Many other close-headed plants, such as the *Azalea*, merely require, in general, the stopping of a few of the strongest shoots.

Time of Potting.—This should generally be done after pruning, and when fresh growth has taken place, because it is advisable never to give more checks to a plant at once than can be avoided. When cut down, or pruned, the energies in the stems, and the unmutated, untouched roots, are at once put forth in the production of fresh shoots. When these are formed and forming, and the plant is kept close for a time after shifting, fresh roots will soon be formed through their agency, upon the same principle

that roots are protruded from a cutting of half-ripened wood under a hand-glass.

Time for Cuttings.—Now we speak merely in general terms. Other things being equal, the older and harder the wood of the cutting, the longer will it be in striking. The younger the wood is, provided it is just hard enough at the base to possess a sufficiency of organisable material, the sooner it will strike; if too soft and spongy it will rot and damp off. Hence the general time for propagating is regulated by the general time of pruning and fresh growth taking place. Small side-shoots, from $1\frac{1}{2}$ to 3 inches in length, just getting firm at the base, cut to a point with a clean, sharp knife, or taken off close to the older branch, and a few of the lower leaves removed, will succeed in the great majority of cases. It is desirable to get them in in April or May, in the case of slow-growing plants, to have them established before winter. We shall merely add a few requisites: 1st, clean pots; 2nd, secure drainage by an inverted small pot inside a larger one, or by crocks so as to fill it three-quarters full; 3rd, place rough material or moss over the drainage, to prevent the finer soil washing through it; 4th, cover it with an inch or so of sandy soil, similar to what the plants delight in, if a little charcoal is added all the better, finishing with a layer of pure sand, watering all well, and then allowing it to drain before inserting the cuttings; 5th, insert the cuttings firmly, fill the small holes made by the dibber with sand, dew all over with the fine rose of a watering-pot, allow the foliage to become dry, place each pot under a bell-glass, or a number under a hand-light, and shade from the sun, either in a corner of the greenhouse, or, better still, in a close frame or pit without any artificial heat being applied, at least none before the cutting begins to swell at its base. Some things may have bottom-heat at once, especially those that have been a little forced previously. Though shade be indispensable, yet as much light as the cuttings will endure must be given, increasing the quantity gradually.

Sowing Seeds.—This may be done at any time when the seeds are thoroughly ripe. As it is of importance to have the seedlings potted off and established before winter, April and May are the best periods in several circumstances. Where

there is no hotbed the latter period will be the best, and even then, for confining heat and moisture, the pot should be covered with a bell-glass, or a square of glass laid over it. Where there is a hotbed, such as a cucumber frame, the seeds may be sown a month or six weeks earlier, and hardened off as soon as they are fairly up and potted off. In sowing, any light, sandy soil will do; for all fine hairy-rooted plants sandy peat is the best. The pots should be nearly as well drained as for cuttings, watered, and allowed to drain before sowing, as the less water they have afterwards until they are up the better. Hard seeds that have been kept dry over the winter will vegetate all the sooner for being steeped several hours in warm water, say from 13° to 14° . In covering the seeds the thickness should be regulated by the size of the seeds. Hence, for very small dusty seeds, the surface of the fine soil should be made smooth, the seeds evenly scattered over it and slightly pressed in, and then just dusted with a little fine sand; but in unpractised hands it is safer to be content with the slight pressing in with a clean, round board, having a nail in the centre to hold by, and then place a square of glass over the pot, with moss or paper above, to shade until vegetation has taken place.

After-Treatment of Cuttings and Seedlings.—This is almost identical. Neither cuttings nor seedlings, if at all thick, will thrive long in the cutting and seedling pot. The sooner they are potted off the better they will thrive. Before that, air must be given to prevent them damping; first at night; next, night, morning, and evening; and lastly, when roots are well formed, during the day, removing the glasses altogether from the cuttings. All this time the little moisture necessary must be carefully given. The less it touches either the stems or leaves, the better. When a little advanced, dust them overhead with a fine rose watering-pot; or a syringe, but be careful to have the foliage dry before shutting up for the night. In potting off tender plants that are very small, three or four may be put round the sides of a four-inch pot; a strong-growing one into such a pot at once. In every such potting, and every time that re-shifting is necessary, a moist, close atmosphere is of importance for a short time afterwards; thus lessening, by means of shading and syringing, the

evaporating processes until the roots have begun to work in the new soil, when air must be given, first gradually, and ultimately plentifully.

GREEN MANURE is a mass of recently-growing plants dug whilst green and fresh into the soil, for the purpose of enriching it; and it is a rule without any exception that all fresh vegetable matters so turned into the earth do render it more fertile; and if plants are grown upon the soil for this purpose, the greater the amount of the surface of leaves in proportion to that of roots the better, because such plants obtain a large proportion of their chief constituent—the chief constituent of all plants, carbon—from the atmosphere. They therefore return to the soil more decomposing matter than they have taken from it.

The putrefaction of the vegetables, and the gases in that case emitted, says Mr. Cuthbert Johnson, appear to be on all occasions highly invigorating and nourishing to the succeeding crop. During this operation, the presence of water is essentially necessary, and is most probably decomposed. The gases produced vary in different plants; those which contain gluten emit ammonia; onions and a few others evolve phosphorus; hydrogen, carbonic acid gas, and carburetted hydrogen gas, with various vegetable matters, are almost always abundantly formed. All these gases, when mixed with the soil, are very nourishing to the plants growing upon it. The observations of the farmer assure us that they are so. He tells us that all green manures cannot be employed in too fresh a state.

Sea Weed is a species of green manure, for it ought to be employed whilst quite fresh. There are many species, and they differ very essentially in their components. The *Lamina'ria*, those long, tawny-green, ribbon-like algæ, so common on our coasts, contain, besides vegetable matter, a large proportion of the salts of potash in addition to those of soda; whereas the *Fu'ci* contain none of the salts of potash. All, however, are excellent manures; and we know a garden, near Southampton, very productive, that for some years had no other manure. It is particularly good as a manure for potatoes. The *Fu'cus vesiculo'sus*, so distinguishable by the bladders full of air embedded in its leaves, is a very excellent manure. It contains, when dry, about

eighty-four parts vegetable matter, thirteen parts sulphate of lime and magnesia, with a little phosphate of lime, and three parts sulphate and muriate of soda.

GREENWEED. *Genista pilosa* and *tinctoria*.

GRENVILLEA CONSPICUA. This is *Pe-largo'nium consp'icuum*.

GREVILLEA. (Named after *G. F. Greville*, a patron of botany. Nat. ord., *Proteads* [*Proteaceæ*]. Linn., 4-*Tetrandria* 1-*Monogynia*. Allied to *Hakea*.)

Greenhouse evergreen shrubs, from New Holland. Seeds sown in a slight hotbed, in spring, or in the greenhouse, as soon as ripe; cuttings of the young shoots when ripened, in sand, under a bell-glass, and when callused at the base to have a slight bottom-heat; peat and loam, with silver sand and bits of charcoal, to keep the soil open. Winter temp., 35° to 45°. *Rosmarinifolia* and *acuminata* have stood out in sheltered places, with little or no protection.

G. acanthifolia (acanthus-leaved). 4. Purple. June. 1824.

— *acuminata* (pointed-leaved). 4. Red. April. 1805.

— *aquifolia* (holly-leaved). 1820.

— *aspera* (rough). 3. Pink. June. 1824.

— *asplenifolia* (asplenium-leaved). 5. Pink. July. 1806.

— *Baueri* (Bauer's). 4. Red. June. 1824.

— *berberifolia* (barberry-leaved). 4. Red. June. 1821.

— *bipinnatifida* (doubly-leafleted). 1837.

— *brachyantha* (short-flowered). Purple.

— *buxifolia* (box-leaved). 6. Pink. June. 1790.

— *Caley'si* (Caley's). 5. Red. June. 1830.

— *canescens* (hoary-leaved). 5. Green, tawny. 1824.

— *ceratophylla* (horn-leaved). 1839.

— *cine'ra* (ashy-coloured). 4. Red. June. 1822.

— *collina* (hill). 4. Pink. June. 1812.

— *conci'na* (neat). 4. Purple. June. 1824.

— *eriostachya* (woolly-spiked). Orange.

— *ferrug'nea* (rusty). 3. 1837.

— *Flindersii* (Flinder's). 3. Purple. June.

N. S. Wales. 1824.

— *gibbosa* (swollen-stemmed). 1821.

— *heterophylla* (variable-leaved). 4. White. June. 1821.

— *juniper'na* (juniper-like). 4. Pink. June. 1822.

— *Lawrence'na* (Mrs. Lawrence's). White. 1839.

— *linearis* (narrow-leaved). 6. White. June. 1790.

— *alba* (white-flowered). 4. White. June. 1790.

— *incarna'ta* (flesh-coloured). 4. Flesh. June. 1790.

— *longifolia* (long-leaved). Reddish-yellow. May.

— *Mangle'sii* (Mangles').

— *mont'na* (mountain). 4. Violet. June. 1822.

— *mucronifolia* (pointed-leaved). 3. Violet. June. 1824.

— *mucronula'ta* (small-pointed-leaved). 4. Pink. June. 1809.

— *planifolia* (flat-leaved). 2. Orange. June. 1823.

— *puni'cea* (scarlet). Purple. June. 1822.

— *robusta* (robust, or silk-oak). 5. Orange. June. 1829.

G. rosmarinifolia (rosemary-leaved). 4. Red. June. 1824.

— *seri'cea* (silky). 6. Pink. June. 1790.

— *stri'cta* (erect). 4. Pink. June. 1820.

— *stylo'sa* (long-styled). 9. Red. June. 1809.

— *sulphu'rea* (sulphur-coloured). 4. Pale yellow. June. 1824.

— *Thielemannia'na* (Thielemann's). Crimson. 1838.

— *trifurcata* (three-forked). 3. Red. June. 1821.

GRAS. Anchovy Pear. (From *grao*, to eat; the fruit being eatable. Nat. ord., *Barringtoniads* [*Barringtoniaceæ*]. Linn., 13-*Polyandria* 1-*Monogynia*. Allied to *Gustavia*.)

Stove evergreen tree. Cuttings of ripe shoots in sand, under a bell-glass, in peat; rich, sandy loam. Summer temp., 60° to 80°; winter, 50° to 55°.

G. cauliflora (stem-flowering). 50. White. Jamaica. 1768.

GRIELUM. (From *grielum*, old-looking; referring to the grey, hoary aspect of the plants. Nat. ord., *Roseworts* [*Rosaceæ*]. Linn., 13-*Polyandria* 4-*Tetragnia*. Allied to *Neurada*.)

Greenhouse herbaceous perennials, from the Cape of Good Hope, all having yellow flowers. Division of the roots in spring; rough, sandy soil, well drained. Winter temp., 40° to 45°.

G. humif'sum (trailing). 1. May. 1825.

— *lacinia'tum* (jagged). $\frac{1}{2}$. August. 1825.

— *tenuifolium* (slender-leaved). 2. May. 1760.

GRIFFINIA. (Named after *W. Griffin, Esq.*, a patron of botany. Nat. ord., *Amaryllids* [*Amaryllidaceæ*]. Linn., 6-*Hexandria* 1-*Monogynia*. Allied to *Eucrosia* in leaf, and to *Lycorus* in the flower.)

Stove bulbs, from South America. Seeds in a hotbed, either when ripe or early in spring, and young offset-bulbs; peat and loam, with plenty of sand, and a little dried leaf-mould. Temp., when growing, 60° to 60°, with plenty of moisture; when at rest, 40° to 50°, and dry.

G. hyacinthina (violet-coloured). 1. Blue. July. 1815.

— *interme'dia* (intermediate). $\frac{1}{2}$. Blue. April. 1823.

— *pareiflora* (small-flowered). 2. Pale purple. August. 1815.

GRINDELIA. (Named after *H. Grindel*, a German botanist. Nat. ord., *Composites* [*Asteraceæ*]. Linn., 19-*Syngenesia* 2-*Superflua*.)

Half-hardy plants, all with yellow flowers, and from Mexico, except when otherwise mentioned. *Cilia'ta* is a hardy biennial, by seeds sown in autumn, or early in spring, under protection; herbaceous species by division and cuttings; evergreens, cuttings in April of half-ripened shoots, in sand, under a bell-glass; peat and loam. Winter temp., 40° to 45°.

HERBACEOUS.

G. angustifolia (narrow-leaved). 1. August. 1822.

- G. ciliata* (hair-fringed). 1½. August. N. Amer. 1821. Biennial.
 — *grandiflora* (large-flowered). 4. Orange. July. Texas. 1851. Biennial.
 — *squarrosa* (spreading). 2. August. Missouri. 1811.

EVERGREEN.

- G. coronopifolia* (coronopus-leaved). 1½. August. 1826.
 — *Duvalii* (Duval's). 1½. August. 1820.
 — *glutinosa* (clammy). 2. 1803.
 — *inuloides* (inula-like). 1½. August. 1815.
 — *Lambertii* (Lambert's). 2. August. 1816.
 — *spatulata* (spatulate). 1½. August. 1819.

GRI'SLEA. (Named after *G. Grisley*, a Portuguese botanist. Nat. ord., *Loosestrifes* [Lythraceæ]. Linn., 8-*Octandria* 1-*Monogynia*. Allied to *Cuphea*.)

Stove evergreen shrubs. Cuttings in April of firm young shoots, in sandy soil, under a bell-glass, in heat; peat and loam, fibry and sandy. Summer temp., 60° to 75°; winter, 50° to 55°.

- G. secunda* (side-flowering). 4. Pale pink. Cumana. 1820.
 — *tomentosa* (downy). 3. Red. June. E. Ind. 1804.

GROBYA. (Named after *Lord Grey of Groby*. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-*Gynandria* 1-*Monandria*. Allied to *Huntleya*.)

Stove orchids. Division of the plant; shallow basket, in sphagnum, fibry peat, and potsherds. Summer temp., 60° to 90°, when growing; winter, when comparatively at rest, 55° to 60°, and dryish.
G. Amherstiae (Lady Amherst's). ½. Ochre-spotted. September. Brazil. 1829.
 — *galeata* (helmeted). Green, purple. July. Brazil. 1836.

GROTTO is a resting place, formed rudely of rock-work, roots of trees, and shells, and is most appropriately placed beneath the deep shade of woods, and on the margin of water. Its intention is to be a cool retreat during summer.

GROUND CHERRY. *Ce'rasus chamæcerasus*.

GROUND CISTUS. *Rhodode'ndron chamæcistus*.

GROUND IVY. *Ne'peta glecho'ma*.

GROUND SENNA. *Ca'ssia chamæcri'sta*.

GROVE is a moderately extensive association of trees without underwood. The most fitting character of a grove is beauty; for fine trees are lovely objects, and a grove is an assemblage of them, in which every individual retains much of its own peculiar elegance, and whatever it loses is transferred to the superior beauty of the whole. To a grove, therefore, which admits of endless variety in the disposition of the trees, differences in their shapes and their greens are seldom very important, and sometimes they

are detrimental. Strong contrasts scatter trees which are thinly planted, and which have not the connexion of underwood; they no longer form one plantation; they are a number of single trees. A thick grove is not, indeed, exposed to this mischief; and certain situations may recom-mend different shapes and different greens for their effects upon the surface. The eye, attracted into the depth of the grove, passes by little circumstances at the entrance: even varieties in the form of the line do not always engage the attention: they are not so apparent as in a continued thicket, and are scarcely seen if they are not considerable.

GRYLLOTA'IPA. See MOLE CRICKET.

GUAIACUM. Lignum Vitæ Tree. (The aboriginal name in South America. Nat. ord., *Beancapers* [Zygophyllaceæ]. Linn., 10-*Decandria* 1-*Monogynia*.)

The Guaiacum bark of *G. officinale* is well known for its medicinal properties. Stove evergreen trees. Cuttings of ripe shoots in April or May, in sand, under a bell-glass, in brisk bottom-heat; rich, sandy, fibry loam. Summer temp., 60° to 85°; winter, 50° to 60°.

- G. arbo'reum* (tree). 30. Blue. Trinidad. 1816.
 — *officinale* (shop). 40. Blue. August. W. Ind. 1694.

— *verticalle* (vertical). 8. Blue. W. Ind. 1820.

GUANO. See DUNGS.

GUA'REA. (The native name. Nat. ord., *Meliads* [Meliaceæ]. Linn., 8-*Octandria* 1-*Monogynia*. Allied to *Carapa*.)

Stove evergreen trees. Same culture as for Guaiacum.

- G. grandiflora* (large-flowered). 20. White. June. S. Amer. 1752.

There are two other species, *G. ramiflora* and *Swa'rtzii*.

GUATTE'RIA. (Named after *Gualteri*, an Italian botanist. Nat. ord., *Anonads* [Anonaceæ]. Linn., 13-*Polyandria* 6-*Polygynia*. Allied to *Anona*.)

The flowers of *G. virgata* are exceedingly sweet. Stove evergreen trees and shrubs. Cuttings of half-ripened shoots in April, as for Guaiacum.

- G. cerasoides* (cherry-like). 16. Green. E. Ind. 1820.
 — *laurifolia* (laurel-leaved). 8. White. Jamaica. 1818.
 — *ru'fa* (reddish). 3. Brown. July. China. 1822.
 — *suberosa* (cork-barked). 8. White. E. Ind. 1820.
 — *virgata* (twiggy. Lancewood). 30. White. Jamaica. 1793.

GUATA. (*Psidium Cattleja'num*.) This evergreen shrub is not generally cultivated for the sake of its fruit; but it is deserving of some encouragement where hothouse room is plentiful. Its fruit, in

size and appearance, somewhat resembles a small Orleans plum, and is of a dull purple colour; it is juicy, and in flavour somewhat resembles a strawberry.

Propagation is effected by cuttings, layers, and seeds.

Soil.—Two parts of loam and one part peat.

Culture.—It requires the ordinary culture given to evergreen shrubs in our stoves. As soon as the plants attain a little age they bear abundantly and in a long succession, often producing fruit through the winter. They will succeed very well in a comfortable conservatory, but a climate of an intermediate character will suit them best, as they enjoy a moderate amount of heat. They occasionally require the pruner's assistance in thinning-out crowded or cross shoots, when such occur, and in pinching the tops from those which become over luxuriant.

Fruit.—It is used for the dessert, and making jelly.

GUAZU'MA. Bastard Cedar. (The aboriginal name in Mexico. Nat. ord., *Byttneriads* [Byttneriaceæ]. Linn., 18-*Polyadelphial-Decandria*. Allied to *Theobroma*.)

The fruit of *G. ulmifolia* is full of a sweet, agreeable pulp. Stove evergreen trees. Cuttings of ripened shoots, and general treatment as for Guajacum.

G. polybotrya (many-racemed). 12. Yellow. Brazil. 1816.

—*tomentosa* (woolly). 20. Cumana. 1820.

—*ulmifolia* (elm-leaved). 40. Yellow. Jamaica. 1739.

GUELDER ROSE. *Viburnum opulus*.

GUERNSEY LILY. *Nerine Sarniensis*.

GUETTA'RDIA. (Named after *E. Guettard*, a French botanist. Nat. ord., *Cinchonads* [Cinchonaceæ]. Linn., 21-*Monœcia* 6-*Hexandria*.)

Stove evergreen trees. General treatment as for Guajacum.

G. hirsuta (hairy). 20. Peru. 1820.

—*lucida* (shining). 20. Jamaica. 1818.

—*odorata* (sweet-scented). 10. Red. Jamaica. 1818.

—*rugosa* (wrinkly-leaved). 20. W. Ind. 1793.

—*tomentosa* (woolly). 20. Jamaica. 1820.

—*scabra* (scaly). 20. White. W. Ind. 1818.

—*speciosa* (showy-flowered). 20. Scarlet. E. Ind. 1771.

GULANDI'NA. Nicker-tree. (Named after *M. Guilandina*, a Prussian botanist. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 10-*Decandria* 1-*Monogynia*. Allied to *Poinciana*.)

Stove evergreen shrubs. Seeds in a hotbed, in spring; cuttings, &c., as for Guajacum.

G. Bo'ndue (Bondue). 19. Yellow. India. 1640.

—*Bondue'lla* (small Bondue). 8. Yellow. E. Ind. 1700.

—*microphy'lla* (small-leaved). E. Ind.

GUINEA PEACH. *Sarcocoe'phalus*.

GUINEA PLUM. *Parina'rium exce'lsum*.

GUM AMMONIAC. *Dore'ma ammoni'acum*.

GUM ARABIC TREE. *Acacia Ara'bica*.

GUM CISTUS. *Cistus ladaniferus*.

GUM ELEMI TREE. *Amyris Plumie'ri*.

GUM LAC TREE. *Butea frondo'sa*.

GUM SENEGAL TREE. *Acacia Senega'l*.

GUM-TREE. *Eucaly'ptus robu'sta*.

GUMMING. See *EXTRAVASATED SAP*.

GUSTA'VIA. (Named after *Gustavus III.* of Sweden. Nat. ord., *Barringtoniads* [Barringtoniaceæ]. Linn., 16-*Monadelphia* 8-*Polyandria*.)

There are several species of these fine stove evergreens not yet in cultivation. Cuttings of ripe shoots in sandy soil, under a bell-glass, and in bottom-heat; rich, loamy soil. Summer temp., 60° to 90°; winter, 55° to 60°. *G. augu'sta* is a splendid, low, evergreen tree, something like a Myrtle or a *Barringtonia*.

G. augu'sta (august). 10. White. Guiana. 1794.

—*fastuosa* (disdainful). 20. White. May. Guiana. 1824.

GUZMA'NNIA. (Named after *A. Guzman*, a Spanish naturalist. Nat. ord., *Bromelworts* [Bromeliaceæ]. Linn., 6-*Hexandria* 1-*Monogynia*. Allied to *Bonapartea*.)

Stove herbaceous perennial. Suckers; rich soil. Stove temp., 60° to 80°; winter, 55° to 60°.

G. tri'color (three-coloured). 1. Green, scarlet. April. S. Amer. 1820.

GYMNE'MA. (From *gymnos*, naked, and *nema*, a filament; in reference to the stamens. Nat. ord., *Asclepiads* [Asclepiadaceæ]. Linn., 5-*Pentandria* 2-*Digynia*. Allied to *Stephanotis*.)

G. lacti'ferum is the Cow Plant of Ceylon, the milk of which is used as food by the natives. Stove evergreen twiners, with yellow flowers. Cuttings of stiff young side-shoots in May, in sand, under a bell-glass, in heat; fibry loam and sandy peat, well drained. Summer temp., 60° to 80°; winter, 50° to 58°.

G. tenaci'ssimum (most tenacious). 8. E. Ind. 1806.

—*ti'gens* (staining). 8. July. E. Ind. 1823.

GYMNO'CLADUS. Kentucky Coffee-tree. (From *gymnos*, naked, and *klados*, a branch; in reference to the soft young wood, devoid of buds. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 22-*Diacia* 9-*Decandria*. Allied to *Parkinsonia*.)

Hardy deciduous tree. By imported seeds and cuttings of the roots, keeping the part nearest the surface uppermost; deep, mellow loam. The tree has a peculiar dead-like appearance in winter, as the buds are inconspicuous, but has a fine effect in summer with its very large green leaves.

G. Canade'nsis (Canadian). 20. White. Canada. 1748.

GYMNODI'SCUS. (From *gymnos*, naked, and *discus*, a disk. Nat. ord., *Compositæ* [*Asteracæ*]. Linn., 19-*Syngenesia* 4-*Necessaria*. Allied to *Othonna*.)

Hardy annual. Seeds in March or April, in any common soil.

G. capilla'ris (hair-like). Yellow. June. Cape of Good Hope. 1822.

GYMNOGRA'MMA. (From *gymnos*, naked, and *gramma*, writing; in reference to the spore-cases. Nat. ord., *Polypods* [*Polypodiaceæ*]. Linn., 24-*Cryptogamia* 1-*Filices*.)

Beautiful stove Ferns, with brown spores, except where otherwise stated. Division of the plant, and spore-cases from the fronds scattered freely on rough peat, in a pot, and covered with a square of glass, before being placed in a damp, warm, shady place; peat and loam, most of the former, with a little silver sand. Summer temp., 60° to 85°, a little shade; winter, 50° to 60°, and rather dry.

G. calomela'nos (beautiful-black). 2. July. W. Ind. 1790.

— *cherophy'lla* (chervil-leaved). $\frac{1}{2}$. June. Brazil. 1825.

— *chrysophy'lla* (golden-leaved). 1. July. W. Ind. 1824.

— *corda'ta* (heart-shaped). 1. August. Cape of Good Hope. 1838.

— *falca'ta* (sickle-shaped). May. W. Ind.

— *hy'brida* (hybrid). May. S. Amer.

— *Java'nica* (Javanese). May. Java.

— *leptophy'lla* (slender-leaved). 1. July. South Europe. 1819.

— *myriophy'lla* (myriad-leaved). 1. Brazil. 1824.

— *ochra'cea* (yellow). 1. Yellow. March. Buenos Ayres.

— *peda'ta* (doubly-lobed). $\frac{3}{4}$. June. New Spain. 1822.

— *Peruvia'na* (Peruvian). 1. July. Peru. 1822.

— *ru'fa* (red-haired). $\frac{1}{2}$. June. Jamaica. 1793.

— *sulphu'rea* (sulphur-coloured). 1. July. Jamaica. 1808.

— *tarta'rea* (infernal). 1. August. W. Ind. 1817.

— *tomentosa* (downy). Brazil. 1831.

— *trifolia'ta* (three-leaved). 2. July. Jamaica. 1810.

— *vesti'ta* (clothed). Yellow. May. W. Ind.

— *villo'sa* (shaggy). June. Brazil. 1836.

GYMNO'PSIS. (From *gymnos*, naked, and *opsis*, like; naked-looking grains. Nat. ord., *Compositæ* [*Asteracæ*]. Linn., 19-*Syngenesia* 3-*Frustranea*.)

Same as *Gymnolomia*. Stove evergreen shrubs, with yellow flowers. Cuttings of half-ripened shoots in spring or summer, in sand, under a bell-glass, and in heat; peat and loam. Summer temp., 60° to 75°; winter, 50° to 55°. *Macula'ta* is very pretty.

G. connata (joined). 4. October. Brazil. 1821.

— *macula'ta* (spotted). 3. June. W. Ind. 1821.

— *tripline'vria* (triple-nerved). 3. October. New Spain. 1825.

GYMNO'PTERIS. (From *gymnos*, naked, and *ptēris*, a fern. Nat. ord., *Polypods* [*Polypodiaceæ*]. Linn., 24-*Cryptogamia* 1-*Filices*.)

Stove Ferns. Treatment similar to *Gymnogramma*.

G. acumina'ta (sharp-pointed). Brown, yellow. July. 1831.

— *axilla'ris* (axillary-spored). Brown, yellow. June. Isle of Luzon.

— *nicotiana'folia* (tobacco-leaved). Brown. July. W. Ind. 1843.

— *norma'tis* (normal). Brown, yellow. June. Samarcand.

— *ophioglossoi'des* (adder's-tongue). Brown. July. W. Ind.

— *platyrhy'nchos* (broad-tip). Brown. W. Ind.

— *quercifo'lia* (oak-leaved). Brown. W. Ind. 1840.

— *subrepa'nda* (slightly-waved-leaved). Brown, yellow. June. Isle of Luzon.

— *tacafol'ia* (yew-leaved). Brown, yellow. June. E. Ind.

— *triloba'ta* (three-lobed). Brown, yellow. August. Isle of Luzon.

GYMNOSPHE'RA. (From *gymnos*, naked, and *sphaira*, a globe; referring to the spore-cases. Nat. ord., *Polypods* [*Polypodiaceæ*]. Linn., 24-*Cryptogamia* 1-*Filices*.)

Stove Fern. Treatment similar to *Gymnogramma*.

G. squamula'ta (scaly). Brown, yellow. April. Malacca.

GYMNOSTA'CHYS. (From *gymnos*, naked, and *stachys*, a spike. Nat. ord., *Orontiadæ* [*Orontiacæ*]. Linn., 4-*Tetrandria* 1-*Monogynia*. Allied to *Acorus*.)

Greenhouse herbaceous perennial. Suckers and divisions; peat and loam. Summer temp., 55° to 75°; winter, 40° to 50°.

G. a'niceps (two-edged). 1. June. N. Holland. 1820.

GYNANDRO'PSIS. (From *gyne*, female, and *andros*, a male, and *opsis*, like; referring to the appearance of the stamens as if borne on the style. Nat. ord., *Capparidæ* [*Capparidaceæ*]. Linn., 15-*Tetradynamia*. Allied to *Cleome*.)

Hardy annuals, seed in the open border, in April, or in a slight hotbed, in March, and transplanted; tender annual and biennial in a hotbed in March, potted and flowered in the greenhouse; rich, sandy, loamy soil.

STOVE.

G. pentaphy'lla (five-leaved). 2. White. July. E. Ind. 1640. Annual.

— *specio'sa* (showy). 3. White. July. Carthage. 1818. Biennial.

HARDY ANNUALS.

G. candela'brum (chandelier). 1. Red. July. S. Amer. 1824.

— *pulche'lla* (neat). 1. White. June. Maranhatta. 1825.

— *sessilifo'ra* (stalkless-flowered). 1. White. July. W. Ind. 1820.

— *triphy'lla* (three-leaved). 1. White. July. W. Ind. 1816.

GYPSO'PHILA. (From *gypsos*, chalk, and *phileo*, to love; in reference to the soil most suitable for them. Nat. ord., *Clovesworts* [*Caryophyllaceæ*]. Linn., 10-*Decandria* 2-*Digynia*. Allied to *Saponaria*.)

Both annuals and perennials by seed, and the latter also by division; common garden-soil.

HARDY ANNUALS.

- G. tenella* (delicate). 1. White. July. Europe. 1816.
 — *viscosa* (clammy). 1½. White. June. Levant. 1773.

HARDY PERENNIALS.

- G. elegans* (elegant). 1. White. July. Crimea. 1828.
 — *fastigiata* (peaked). 1½. White. June. Germany. 1759.
 — *glauca* (milky-green). 1½. White. August. Caucasus. 1822.
 — *glomerata* (crowded). 1. Pale red. July. Tauria. 1818.
 — *Gmelini* (Gmelin's). 1. White. August. 1831.
 — *perfoliata* (leaf-pierced). 2. Flame. July. Spain. 1732.
 — *prostrata* (trailing). 1. Red. August. Siberia. 1759.
 — *repens* (creeping). ½. Striped. August. Siberia. 1774.
 — *rigida* (stiff). ½. Pink. July. France. 1769. Trailer.
 — *sabulosa* (sandy). 1½. White. July. Tauria. 1817.
 — *saligna* (willowy). Pink. June. Europe. 1837.
 — *saxifraga* (saxifrage). ½. Pink. July. Germany. 1774. Trailer.
 — *spinosus* (spiny). Pink. June. Persia. 1837.
 — *Steveni* (Steven's). 2. White. July. Iberia. 1822.
 — *struthium* (struthium). 2. White. July. Spain. 1729.
 — *tenuifolia* (fine-leaved). 1. Red. July. Caucasus. 1824.

GYPSUM, or PLASTER OF PARIS, is a sulphate of lime, composed of—Sulphuric acid, 48; lime, 33; water, 24. It has been employed advantageously as a manure to clover, the turnip, and potato, at the rate of 3 cwt. per acre. Potato sets are frequently rolled in it when pulverized. It has been recommended to be sprinkled in stables, and to be mixed with dung-hills, "to fix the ammonia," as it is popularly termed. All the ammonia lost in fumes from a dung-hill might be more readily and as cheaply restored to it by mixing with it, when dug into the soil, a little of the ammoniacal liquor from the gas-works.

H.

HABENARIA. (From *habena*, a rein; referring to the long, strap-shaped spur. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-Gynandria 1-Monandria. Allied to *Gymnadenia*.)

Some will grow in peaty soil in the open border, if kept a little protected, and somewhat dry in winter; others are stove orchids, requiring peat and loam, and treatment similar to a *Bletia*. Divisions of the root. Summer temp., 60° to 80°; rest period, in winter, 50°; and when starting into flower, 70°.

HARDY.

- H. bifolia* (two-leaved). White. June. Britain.
 — *procera* (tall-stemmed). 2. Green. August. N. Amer. 1822.

STOVE.

- H. alata* (winged). ½. Yellow. June. W. Ind. 1823.
 — *cordata* (heart-shaped). Green. Madeira. 1830.
 — *caudata* (white-flowered). 1. White. July. Sierra Leone. 1844.
 — *flava* (yellow). Yellow. July. Australia. 1823.
 — *gigantea* (gigantic). 4. Green. White. July. Bombay. 1834.
 — *Goodyeroides* (Goodyera-like). 1. White. December. Bombay. 1834.
 — *gracilis* (slender). 1½. Yellow. July. E. Ind. 1823.
 — *leptoceras* (slender-horned). 1½. Green, yellow. October. 1824.
 — *Lindeni* (Linden's). White. August. Caraccas.
 — *longicauda* (long-tailed). Greenish-white. Demerara. 1830.
 — *macroceras* (large-horned). 2. White. June. W. Ind. 1825.
 — *maculosa* (small-spotted). White. September. Nerida.
 — *marginala* (bordered). ¾. Yellow. July. E. Ind. 1822.
 — *membranacea* (skinny). July. Sierra Leone. 1826.
 — *ochroleuca* (yellowish-white). ½. Pale yellow. June. N. Holland. 1824.
 There are several other species.

HABIT is the appearance or mode of growth. Thus a *Verbena* may be of straggling or shrubby, compact habit. This habit is much influenced by soil and cultivation. Thus *Buxus sempervirens* in a poor soil is dwarfish, but in a rich soil becomes tree-like. The term *habit* is applied to the power a plant possesses of vegetating earlier or later, when once accustomed to do so. Thus, a vine once forced to break early will retain the habit of doing so the following year, though not forced.

HABITAT. The native place of a plant.

HABRANTHUS. (From *habros*, delicate, and *anthos*, a flower. Nat. ord., *Amaryllids* [Amaryllidaceæ]. Linn., 6-Hexandria 1-Monogynia. Allied to *Phycella* and *Zephyranthes*.)

The Habranthi are natives of dry, gravelly places, and are half-hardy with us, but retaining their leaves in winter; if in an open border, they require a glass covering; they flower without the leaves after a period of rest. Offsets and seeds, which are produced often freely, and which should be sown when gathered, or carefully saved until the following spring, and then have the assistance of a hotbed; sandy loam and a little peat.

- H. angustatus* (narrow). ½. Red. August. Brazil. 1822.
 — *Andersoni* (Anderson's). 1. Yellow, red. May. Monte Video. 1829.
 — *auzeus* (golden). Yellow. June. S. Amer. 1829.
 — *cupreus* (coppery). Brown. June. S. Amer. 1829.
 — *Texanus* (Texian). 1. Yellow. Texas. 1834.
 — *Bagnoldi* (Bagnold's). 1. Yellow. October. Chili. 1829.

- H. bifidus* (two-cleft). 3. Pink. June. Buenos Ayres. 1823.
 — *co'ncolor* (one-coloured-flowered). Straw. April. Mexico. 1844.
 — *gracilifolius* (slender-leaved). 3. White. January. S. Amer. 1821.
 — *Boothia'nus* (Booth's). 4. Pink. October. Buenos Ayres. 1836.
 — *hespe'rius* (western). Straw. June. S. Amer. 1807.
 — *interme'dius* (intermediate). Red. February. Brazil. 1827.
 — *kermes'tinus* (crimson). Crimson. July. Brazil.
 — *lorifo'lius* (strap-leaved). 3. Pink. July. S. Amer. 1821.
 — *minia'tus* (red-flowered). 1. Red. June. Chili. 1832.
 — *no'bilis* (noble). Crimson. October. Brazil. 1844.
 — *pal'lidus* (pale-flowered). 1. Pink. June. Valparaíso. 1830.
 — *phycelloi'des* (phycella-like). 3. Scarlet. September. Chili. 1805.
 — *prate'nsis* (meadow). 1. Scarlet, yellow. May. Chili. 1840.
 — *quadrifo'rus* (four-flowered). 1. Crimson, yellow. May. Chili. 1841.
 — *pumilus* (dwarf). 3. Red. September. Chili. 1831.
 — *robustus* (robust). 1. Red. June. Buenos Ayres. 1827.
 — *roseus* (rosy). 3. Rose. June. Chiloe. 1827.
 — *spatha'ceus* (large-spathed). 3. August. Buenos Ayres. 1825.
 — *versicolor* (changeable-coloured). 3. Pink. September. S. Amer. 1821.

HABROTHAMNUS. (From *habros*, gay, and *thamnus*, a shrub. Nat. ord., *Nightshades* [Solanaceæ]. Linn., 5-Pentandria 1-Monogynia. Allied to *Cestrium*.)

Greenhouse evergreen shrubs, from Mexico. *H. fasciculatus* grown against a conservatory wall, on an east or west aspect, is not surpassed by any in the Mexican flora. The sun is too powerful for the flowers on a south aspect; it flowers on last year's wood, and should not be pruned till after the flowers fade. They may be grown as specimens, or against pillars. Cuttings of firm side-shoots, taken off when the plant is growing, in sand, under a bell-glass, and placed in a mild bottom-heat; loam and peat, lightened with sand and charcoal. Winter temp., 40° to 48°.

- H. corymbosus* (corymbed). 4. Rose. March. 1844.
 — *cyaneus* (blue-flowered). 5. Violet, blue. March. 1844.
 — *elegantis* (elegant). 4. Carmine. January. 1844.
 — *fasciculatus* (cluster-flowered). 5. Crimson. March. 1843.
 — *purpureus* (purple-flowered). Purple. August. 1844.
 — *tomentosus* (downy). 4. Purple. August. 1844.

HACQUETIA. (In honour of B. Hacquet, a German botanist. Nat. ord., *Umbellifers* [Apiaceæ]. Linn., 5-Pentandria 2-Digynia.)

Hardy herbaceous perennial. Division; peat and loam. Does best in a pot among alpine.

- H. epipactis* (epipactis). 3. Yellow. April. Alps. 1823.

HÆMADICTYON. (From *haima*, blood, and *diktyon*, a net; referring to the veins in the leaves. Nat. ord., *Dogbanes* [Apo-

cynaceæ]. Linn., 5-Pentandria 1-Monogynia. Allied to *Prestonia*.)

Yellow-flowered, stove, evergreen twiners, from the West Indies. Cuttings of half-ripened shoots in sand, under a bell-glass, and in bottom-heat; loam and peat, both fibry and sandy. Summer temp., 60° to 80°; winter, 50° to 55°.

- H. suberectum* (nearly-erect). July. 1759.
 — *venosum* (red-veined). 20. July. 1821.

HÆMANTHUS. Blood Flower. (From *haima*, blood, and *anthos*, a flower; referring to the colour of the spathe and filaments of some species. Nat. ord., *Amaryllids* [Amaryllidaceæ]. Linn., 6-Hexandria 1-Monogynia.)

Bulbs from the Cape of Good Hope, except where otherwise mentioned. Chiefly valued for their leaves, and the markings on the flower-scape. Except *multiflorus* they will all live in a border, with a glass covering in winter, protected from frost. Under such treatment they rest in summer, and grow in winter. Offsets; sandy loam, fibry peat, and a little dried cow-dung.

- H. albiflorus* (white-flowered). 1. White. June. 1791.
 — *amarilloides* (amaryllis-like). 3. Pink. August. 1825.
 — *carneus* (flesh-coloured). 3. Pink. June. 1819.
 — *carinata* (keel-leaved). 3. Pink. August. 1759.
 — *coarctatus* (straitened). 1. Pink. February. 1795.
 — *coccineus* (scarlet). 1. Red. September. 1629.
 — *crassipes* (thick-leaf-stalked). 3. Red. June. 1820.
 — *humilis* (low). 3. Scarlet. September. 1825.
 — *hyalocarpus* (glass-fruited). 1. Red. July. 1822.
 — *insignis* (showy). Scarlet. August. Natal.
 — *lanceifolius* (spear-head-leaved). 1. Red. October. 1794.
 — *maculatus* (spotted-leaved). 1. June. 1790.
 — *magnificus* (splendid). 13. Scarlet. July. 1838.
 — *moschatus* (musk-scented). 1. Red. September. 1816.
 — *multiflorus* (many-flowered). 1. Scarlet. June. Sierra Leone. 1783. Warm greenhouse.
 — *orbicularis* (globe-shaped). 3. White. July. 1820.
 — *pumilio* (dwarf). 3. Pink. August. 1789.
 — *pubescens* (downy). 1. White. July. 1774.
 — *punicus* (scarlet). 1. Scarlet. June. 1722.
 — *quadrivalvis* (four-valved). 1. Flame. September. 1790.
 — *rotundifolius* (round-leaved). 1. Scarlet. July. 1790.
 — *sanguineus* (bloody). 1. Crimson. August. 1820.
 — *tenuiflorus* (slender-flowered). 1. Bright red. April. Mozambique. 1839.
 — *tigrinus* (tiger-like). 1. Flame. April. 1790.

HÆMATOXYLON. Logwood. (From *haima*, blood, and *xylon*, wood. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 10-Decandria 1-Monogynia.)

Stove evergreen tree. Cuttings of young shoots getting firm, in sand, under a bell-glass, in heat; and seeds steeped before sowing, and then placed in a hotbed, in spring; peat and loam. Summer temp., 60° to 85°; winter, 45° to 55°.

- H. Campechianum* (Campechy). 20. Yellow. S. Amer. 1724.

HÆMODO'RUN. Bloodroot. (From *haima*,

blood, and *doron*, a gift; referring to the roots being eaten by the natives of Australia. Nat. ord., *Bloodroots* [Hæmodoracæ]. Linn., 3-Triandria 2-Digynia.)

Greenhouse herbaceous plants, from Australia, with orange flowers. Division of the roots, as growth commences, in spring; peat and loam. Winter temp., 35° to 40°.

— *H. planifolium* (flat-leaved). 1½. August. 1810.
— *teretifolium* (round-leaved). 1. August. 1822.

HA-HA is a sunk fence, being placed at the bottom of a deep and spreading ditch, either to avoid any interruption to an expanse of surface, or to let in a desired prospect. As all deceptions are unsatisfactory to good taste, and as, when viewed lengthwise, these fences are formal and displeasing, they ought never to be adopted except in extreme cases.

HAIR. See ANIMAL MATTERS.

HA'KEA. (Named after Baron Hake, a German patron of botany. Nat. ord., *Proteads* [Proteacæ]. Linn., 4-Tetrandria 1-Monogynia.)

Greenhouse evergreen, New Holland shrubs, all with white flowers, except where otherwise mentioned. Cuttings of young shoots well ripened, in sand, over peat, and under a bell-glass, kept cool until a callus is formed, and then placed in a mild bottom-heat; peat two parts, and one of loam, with sufficiency of sand and broken freestone and pieces of charcoal, to keep the compost open. Winter temp., 35° to 45°. A shady place out of doors in the very height of summer.

— *H. aciculn'ris* (needle-leaved). 3. June. 1790.

— *acanthophylla* (prickly-leaved). 3. 1821.

— *Baxteri* (Baxter's). 1830.

— *ceratophylla* (horn-leaved). 4. Brown. June. 1824.

— *cine'rea* (grey-leaved). 5. June. 1803.

— *clavata* (club-leaved). 5. July. 1824.

— *cristata* (crested). 1837.

— *cucullata* (hooded). 4. June. 1824.

— *dactyloides* (dactylis-like). 7. July. 1790.

— *denticulata* (small-toothed). 1837.

— *echinata* (hedgehog). 3. June. 1824.

— *epiglotis* (windpipe-valved). 4. May. 1819.

— *flexilis* (pliant). 4. 1824.

— *florida* (flowery). 5. 1803.

— *gibbosa* (swollen-fruited). 7. May. 1790.

— *glabellla* (smoothish).

— *ilicifolia* (holly-leaved). 4. August. 1803.

— *Lamberti* (Lambert's). 4. 1825.

— *lanigera* (woolly). 3½. June. 1820.

— *latifolia* (broad-leaved). 4. 1825.

— *linearis* (narrow-leaved). 4. May. 1824.

— *longifolia* (long-leaved). 3. 1825.

— *marginata* (bordered). 4. July. 1824.

— *mixta* (mixed).

— *myrcifolia* (gale-leaved). 1823.

— *myrtoides* (myrtle-like). 1½. Red. February. Swan River.

— *nitida* (glossy). 5. June. 1803.

— *nodosa* (knotted). 1824.

— *obliqua* (unequal-flowered). 6. May. 1803.

— *oleifolia* (olive-leaved). 5. June. 1794.

— *pectinata* (comb-like). 4. May. 1810.

— *pugioniformis* (dagger-formed). 6. 1796.

— *repanda* (wavy-leaved). 4. June. 1824.

— *H. ruscifolia* (ruscus-leaved). 4. July. 1824.

— *saligna* (willow-leaved). 7. April. 1791.

— *scoparia* (broom-like). Yellow. Swan River

— *suaveolens* (sweet-smelling). 4. 1803.

— *subulata* (awl-shaped-leaved). 4. May. 182

— *sulcata* (furrowed-leaved). 4. May. 1820.

— *trifurmis* (three-form).

— *trifurcata* (three-forked). 5. June. 1824.

— *tuberculata* (knotted). 1830.

— *uticina* (furze-like). 4. 1844.

— *undulata* (wavy-leaved). 3. June. 1803.

— *varia* (variable). 3. July. 1825.

— *Victoriae* (Queen Victoria's). White, yellow

HALE'SIA. Snowdrop-tree. (Named after

Dr. Hales, author of *Vegetable Statics*.

Nat. ord., *Storaxworts* [Styracacæ]. Linn.,

11-Dodecandria 1-Monogynia.)

Hardy deciduous shrubs; by seed in spring, by layers, and cuttings of the roots in spring and autumn; require a deep, sandy, moist soil to grow them to a large, healthy size.

— *H. tetra'ptera* (four-winged). 10. White. May. Carolina. 1756.

— *parviflora* (small-flowered). 8. White. May. N. Amer. 1822.

— *dip'tera* (two-winged). 6. White. April. N. Amer. 1758.

HALE-HARDY PLANTS are those which require partial shelter, as in a cold pit or frame, during the winter. Here some attention is required to exclude from them dampness and frost, but especially the first.

HALIMODE'NDRON. Salt-tree. (From *halimos*, sea-coast, and *dendron*, a tree; referring to its native habitat. Nat. ord., *Leguminous Plants* [Fabacæ]. Linn., 17-Diadelp'ia 4-Decandria. Allied to *Colutea*.)

Hardy deciduous shrubs, natives of Siberia. Grafted standard high on the Laburnum it forms one of the most graceful drooping trees that can adorn a lawn. Seeds, cuttings, and layers of the roots; common soil; if sandy and open all the better.

— *H. arge'nteum* (silvery). 6. Pink. May. 1779.

— *brachyse'ma* (short-standarded). 6. Pink. June.

— *subvire'scens* (pale-greenish). 6. Pink. May.

HALLE'RIA. (Named after Dr. Haller, a botanist. Nat. ord., *Figworts* [Scrophulariaceæ]. Linn., 14-Didynamia 2-Angiospermia. Allied to *Collinsia*.)

Greenhouse evergreen shrubs, from the Cape of Good Hope. Cuttings of half-ripened shoots in sand, under a bell-glass; rich, sandy loam. Summer temp., 60° to 70°; winter, 35° to 45°, with plenty of ventilation at both seasons.

— *H. elliptica* (oval). 6. Scarlet. May. 1816.

— *lucida* (shining-leaved). 6. Scarlet. May. 1752.

HALTICA. See BLACK FLEA.

HAMAME'LIS. Witch Hazel. (From *hama*, together with, and *mela*, fruit; referring to the flowers and fruit being on this tree at the same time. Nat. ord.,

Witch Hazels [Hamamelidacæ]. Linn., 4-*Tetrandria* 2-*Digynia*.)

Hardy deciduous shrubs, from North America, which produce their yellow flowers during the winter, after the leaves have fallen. Cuttings of the roots, layers, and seeds, the latter generally requiring two years to vegetate; soil sandy and moist; male and female flowers generally on separate plants; the female flowers are the most attractive.

H. macrophylla (large-leaved). 15. May. 1812.
— *Virginica* (Virginian). 10. May. 1812.

HAMBURGH PARSLEY. *Petroselinum sativum*, var. *latifolium*.

Use.—This, known also by the name *broad-leaved* and *large-rooted Parsley*, is cultivated for its root, which attains the size of a middling parsnip, boiling exceedingly tender and palatable. It is eaten both as a sauce to flesh meat, and in soups, &c.

Sowing.—Sow at monthly intervals, from February until the middle of June, thinly in drills nine inches apart. The plants appear in about a month after sowing, and require to be thinned to nine inches asunder. Frequent hoeing is the only cultivation required. By the end of July, or during August, the earliest sowings will have acquired a sufficient size for occasional use; but the roots seldom attain their full growth until Michaelmas; and the latest crops not until the following year. On the arrival of frost, some of them must be taken up, and buried in sand, in a dry situation under cover.

To save Seed.—Some plants must be left where grown, and allowed to run in May. Their produce will ripen in July or August. Then to be cut, dried, beat out, and stored.

HAME'LIA. (Named after the celebrated botanist, *Du Hamel*. Nat. ord., *Cinchonads* [Cinchonacæ]. Linn., 5-*Pentandria* 1-*Monogynia*.)

Stove evergreen shrubs. Cuttings of half-ripened shoots in the beginning of summer, in sand, under a bell-glass, and in bottom-heat; sandy peat and fibry loam. Summer temp., 60° to 95°; winter, 50° to 55°.

H. axillaris (axillary). 2. Yellow. August. W. Ind. 1822.

— *chrysantha* (yellow-flowered). 8. Yellow. November. Jamaica. 1822.

— *latifolia* (broad-leaved). Scarlet. August. Trinidad. 1819.

— *patens* (spreading). 5. Yellow. July. Hispaniola. 1752.

— *sphaerocarpa* (round-fruited). 10. Orange. July. Mexico. 1811.

— *ventricosa* (much-swollen). 8. Yellow. September. W. Ind. 1778.

HAMILTONIA. (Named after Mr. Hamilton, an American botanist. Nat. ord.,

Cinchonads [Cinchonacæ]. Linn., 22-*Diæcia* 3-*Triandria*. Allied to Guettarda.)

Stove evergreen shrubs, with sweet-scented flowers. Cuttings of half-ripened shoots in sand, under glass, and in a moist bottom-heat. Summer temp., when growing, 60° to 80°; in winter, when at rest, 48° to 55°; when in bloom, 55°.

H. scabra (scaly). Pale blue. January. Nepal. 1823.

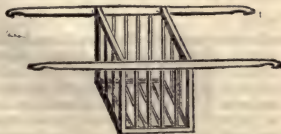
— *suaveolens* (sweet-scented). White. October. E. Ind. 1818.

HAMMATOPHORA BUCEPHALA. Buff-tip Moth. This moth is from two to three inches across the opened fore-wings, which are silvery-grey, crossed by a slender black line, and preceded by a red one near the base of the wings, several dusky bars in the middle, and with a large oval cream-coloured patch, enclosing some small buff spots; edged with a curved red line, preceded by a black one; the edges of the wings varied, black, grey, and tawny red. Hind-wings whitish; body buff, dark brown at the sides, and behind. The caterpillars are yellow, with black legs, and several rows of interrupted black stripes. Sometimes the green and black most prevail, so that the yellow seems to constitute the bands. They are found whilst young, thirty or forty together, on the leaves of the filbert during August and September, but also on the leaves of the elm, oak, &c. The chrysalis is found in the earth; it has two small points at its tail.

HAMMERS for gardening purposes are made with a clawed head, for drawing as well as driving in nails. They are made of five different sizes, No. 5 being the largest. Those are best with a stud in the centre of the head, as this acts as a fulcrum in drawing nails, and prevents bruising any branch beneath the hammer during the operation.

HANBURY. See AMBURY.

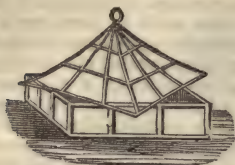
HAND-BARROW is best made of this form:—



The cage below is useful for carrying leaves and other litter; and when the close, moveable cover is on, it serves as a conveyance for plants in large pots or tubs, which, when in flower or bearing

fruit, might be too violently shaken in a wheelbarrow.

HAND-GLASS is a portable glass-case used for sheltering cauliflowers and other plants in winter, and during early spring, or to retain a regular supply of moisture to cuttings, or until they are rooted. The most durable and convenient are made with cast-iron framing of this form:—



They are sometimes made with moveable tops, as here represented; but the only advantage it affords is, that several of the lower portions may be placed upon each other to protect any tall-growing shrub in severe weather, otherwise they are more troublesome to move, and more liable to breakage than if made entire.

HAND PLANT. *Cheiroste'mon*.

HAND-WEEDING might be banished almost from the garden, if in the kitchen department all crops were inserted in drills. This is most desirable; for the stirring of the surface consequent to hoeing is much more beneficial to the crops, and cannot be repeated too frequently.

HANGING is when a plant is so badly inserted by the dibble, that the lower parts of the roots are in an unfilled hole, while the earth is pressed round their collar, so as to keep them suspended upright in their place.

HARDENBERGIA. (Named after the Countess of Hardenberg, in Germany, sister to Baron Hugel. Nat. ord., *Leguminous Plants* [Fabacæ]. Linn., 17-*Diadelphia* 4-*Decandria*. Allied to *Kennedy*.)

Greenhouse evergreen climbers, from Australia, with purple flowers, except where otherwise mentioned. Cuttings of the young side-shoots, a little firm at their base, taken off in April, in sand, under a bell-glass, and placed in a close frame or pit without bottom-heat; peat two parts, loam one part, with sand and a little charcoal, to keep the compost open. They like a little shade in the middle of summer, and a temperature of 40° to 43° in winter.

H. Comptonia'na (Compton's). 12. Purple, lilac. March. 1803.

— *cordata* (heart-leaved). April. 1820.

— *digitata* (finger-leaved). 10. April. 1830.

H. macrophy'lla (large-leaved). 15. Scarlet. April. 1835.

— *monophy'lla* (one-leaved). 10. April. 1790.

— *longiracemo'sa* (long-racemed). 10. April. 1828.

— *ovata* (egg-leaved). 6. April. 1820.

HARDENING-OFF. By this term gardeners intend the gradual preparation of plants to endure exposure to a colder and more airy situation. Thus, before bedding-out geraniums, or ridging-out cucumbers, in open beds, the plants that have been nursed under glass are, by degrees, exposed to more air and less warmth, by opening the lights wider, and for a greater length of time, not only by day, but by night, until they become inured to so low a temperature as to suffer no check by being placed in the open ground.

HARDWI'CKIA. (Named after *General Hardwicke*, of the East Indian Company. Nat. ord., *Leguminous Plants* [Fabacæ]. Linn., 10-*Decandria* 1-*Monogynia*. Allied to *Cynometra*.)

Stove evergreen trees, with yellow flowers, from the East Indies. Cuttings of ripe young shoots in sandy soil, and in a brisk heat; rich, sandy loam. Summer temp., 60° to 85°; winter, 50°.

H. bina'ta (twin-leaved). 40. March. 1820.

— *pinna'ta* (leafleted). 40. April. 1818.

HARDY PLANTS are those which endure uninjured our seasons without protection.

HAREBELL. *Campanula rotundifo'lia*.

HARES and **RABBITS** are deterred from injuring trees and shrubs, by mixing night-soil and clay in water, and daubing it over the stems, with a brush, in November; and, if the winter proves very wet, in February. The November dressing is, however, generally sufficient. This mixture has stopped their depredations entirely, even when they had commenced operations.

HARE'S-EAR. *Bupleu'rum*.

HARE'S-FOOT. *Ochro'ma lago'pus*.

HARE'S-FERN. *Dava'llia Canarie'nsis*.

HARICOT. See *KIDNEY BEAN*.

HARO'NGA. (From *ronga*, the name in Madagascar. Nat. ord., *Tulsans* [Hypericacæ]. Linn., 18-*Polyadelphia* 2-*Polyandria*. Allied to *Elodea*.)

Evergreen stove shrub. Cuttings of young shoots getting a little firm, in sandy peat, under a bell-glass, in heat; sandy loam and peat. Summer temp., 60° to 70°; winter, 48° to 55°.

H. Madagascari'ensis (Madagascar). 10. Yellow. July. Madagascar. 1825.

HARPA'LIIUM. (From *Harpalyce*, daughter of *Lycourgus*. Nat. ord., *Composites* [Asteracæ]. Linn., 10-*Syngenesia* 3-*Frustanea*. Allied to *Helianthus*.)

Hardy herbaceous plant. Division of the plant in spring; common soil.

H. rigidum (stiff). Yellow. August. N. Amer.

HARRISONIA. (Named in honour of Mrs. Harrison, of Liverpool, its introducer. Nat. ord., *Asclepiads* [*Asclepiadaceæ*]. Linn., 5-Pentandria 2-Digynia.)

This is really a *Baxteria*. Stove evergreen shrub. Cuttings of the young shoots, a little firm at their base, after fresh growth has commenced, in spring, in sandy soil, under a glass, in bottom-heat; peat and sandy loam. Summer temp., 60° to 85°; winter, 43° to 55°.

H. Loniceroïdes (Lonicera-like). 6. Scarlet. July. Brazil. 1825.

HARTOGIA. (Named after J. Hartog, a Dutch naturalist. Nat. ord., *Spindle-trees* [*Celastraceæ*]. Linn., 5-Pentandria 1-Monogynia. Allied to *Elæodendron*.)

Evergreen shrub, from the Cape of Good Hope. Cuttings of the ripe shoots under a bell-glass, or under a hand-light, and protected; sandy loam and peat. Usually grown in the greenhouse, but will stand out of doors in elevated, and yet sheltered places.

H. Capeensis (Cape). 6. July. 1800.

HART'S TONGUE. *Scolopendrium*.

HARTWEGIA. (Named after M. Hartweg, court gardener to the Emperor of Austria, once a botanical collector for the Horticultural Society. Nat. ord., *Orchids* [*Orchidaceæ*]. Linn., 20-Gynandria 1-Monandria.)

Stove orchids. Division of the plant in spring; very fibry peat, potsherds, and charcoal. Summer temp., 60° to 85°; winter, 50° to 55°.

H. crassifolia (thick-leaved). Purple. April. Guatemala. 1840.

— *purpurea* (purple). 1. Purple. August. Vera Cruz. 1837.

— *angustifolia* (narrow-leaved). 1. Purple. June. Mexico. 1842.

HASSAGAY-TREE. *Curtisia*.

HATCHET-VETCH. *Biscerrula*.

HAUTOY or HAUTOIS. See **STRAW-BERRY.**

HAWK-FLY. See **SCIEVA.**

HAWKWEED. *Hieracium*.

HAWORTHIA. (Named in honour of A. H. Haworth, Esq., a distinguished English botanist.)

For culture, &c., see **ALOE**, of which it is a section. They are all natives of the Cape of Good Hope, and all have grey flowers.

H. albicans (white-edged). 1. July. 1795.

— *altivirens* (ridged-lined). ½. August. 1824.

— *angustifolia* (narrow-leaved). ½. June. 1824.

— *arachnoides* (cobweb-like). 1. August. 1727.

— *minor* (smaller). 1. August. 1819.

— *aristata* (awned). 1. July. 1820.

— *asperiuscula* (roughish). ½. June. 1818.

— *atro-virens* (dark green). 1. May. 1823.

— *attenuata* (attenuated). 1. July. 1790.

— *brevis* (short). ½. June. 1810.

H. chlorocantha (green-spined). ½. August. 1820.

— *claripetala* (clear-pearled). ½. June. 1824.

— *coarctata* (compressed). ½. August. 1821.

— *concinna* (neat). ½. 1823.

— *cordifolia* (heart-leaved). ½. June. 1817.

— *curta* (short-twisted). ½. July. 1816.

— *cuspidata* (spine-pointed). ½. August. 1819.

— *cymbiformis* (boat-formed). ½. June. 1795.

— *denticulata* (small-toothed). ½. August. 1819.

— *erecta* (erect-pearl). ½. August. 1818.

— *expansa* (expanded). 1. August. 1795.

— *fasciata* (banded-pearl). ½. August. 1818.

— *major* (larger). ½. July. 1820.

— *grana'ta* (grained). ½. July. 1795.

— *hybrida* (hybrid). ½. June. 1821.

— *indurata* (hard-branched). ½. June. 1820.

— *late-virens* (lively-green). ½. August. 1819.

— *latevis* (smooth-white-edged). ½. August. 1820.

— *lumpida* (lumpid). ½. August. 1819.

— *margaritifera* (pearl-bearing). 1. July. 1739.

— *minor* (lesser-pearl). 1. June.

— *mira bilis* (admirable-cushion). ½. July. 1795.

— *multifaria* (many-sided). ½. July. 1824.

— *mucronata* (sharp-pointed). ½. July. 1820.

— *mutica* (blunt-cushion). ½. July. 1820.

— *nigricans* (granulated-black). ½. August. 1822.

— *nitida* (shining). 1. July. 1825.

— *obtusata* (small-blunt). ½. June. 1824.

— *oblata* (pale-green). ½. June. 1820.

— *planifolia* (flat-leaved). ½. April. 1824.

— *papillo'sa* (nippled). 1. June. 1820.

— *semipapillo'sa* (half-nippled). ½. June. 1820.

— *pa'ra* (small). ½. May. 1821.

— *pseudotortuosa* (slightly-twisted-triangular). 1. July. 1818.

— *pu'mila* (dwarf-cobweb). 1. May. 1752.

— *radula* (file-surfaced-pearl). ½. May. 1805.

— *asperior* (rougher). 1. August. 1820.

— *laevior* (smoother). 1. August. 1825.

— *pluriperlata* (many-pearled). 1. August. 1820.

— *ramifera* (branch-bearing). ½. August. 1821.

— *recurva* (curled-back-leaved). 1. August. 1795.

— *Reinwarti* (Reinwart's pearl). ½. June. 1820.

— *reticulata* (netted). ½. June. 1794.

— *retusa* (bent-back-cushion). 1. June. 1720.

— *sca'bra* (rough). ½. June. 1818.

— *semimargaritifera* (half-pearl-bearing). 1. April. 1819.

— *major* (larger). 1. April. 1819.

— *minor* (smaller). 1. April. 1819.

— *multiperlata* (many-pearled). 1. April. 1819.

— *semiglabrata* (half-smoothed). ½. June. 1811.

— *setata* (bristle-leaved). 1. June. 1820.

— *major* (larger). 1. July. 1820.

— *media* (mediate). 1. July. 1820.

— *nigricans* (blackish). 1. July. 1820.

— *sordida* (sordid). ½. July. 1820.

— *tessellata* (dark-checkered). ½. June. 1823.

— *tortuata* (collared). 1. August. 1823.

— *tortellata* (slightly-twisted). ½. July. 1817.

— *tortuosa* (twisted). 1. July. 1794.

— *translucens* (transparent). ½. June. 1795.

— *turgida* (swollen-cushion). ½. August. 1819.

— *venosa* (veiny). ½. June. 1820.

— *virescens* (greenish). 1. August. 1819.

— *minor* (smaller). ½. August. 1819.

— *viscosa* (clammy). ½. June. 1737.

HAWTHORN. *Crataegus*.

HAWTHORN-BUTTERFLY. *Pieris*.

HAYLOCKIA. (Named after Mr. Haylock, gardener to Dr. Herbert. Nat. ord.,

Amaryllids [Amaryllidaceæ]. Allied to Cooperia.)

A small bulb, with very narrow leaves and one flowered scape. Offsets; sandy loam, with a little peat and leaf-mould; requires the protection of a frame, or to be deeply planted in a dry place in winter.

H. pusilla (dwarf). †. Straw. September. Buenos Ayres. 1829.

HAZEL. *Co'rylus avella'na*.

HEADING, or as it is also termed, *Cab-baging* or *Loaving*, is an inaptitude to unfold the central leaves, characterizing the various members of the Cabbage tribe. They have their centre or bud composed of a larger number of leaves than usual, and these, in some instances, are so complexly combined that the plant has not sufficient power to force them open to permit the protrusion of the seed-stem. The closeness of the heading is regulated by the exposure to the light. In a shady situation all the leaves are required to elaborate the sap, on account of the deficient light rendering each less active; therefore they open as they are formed. In a free exposure a few leaves are able to effect the requisite decomposition; and hence the reason why cabbages always have "*harder hearts*" in summer than in spring or autumn, when the light is less intense.

HEADING-DOWN, is cutting off entirely, or to a considerable extent, the branches of a tree or shrub—a process not rashly to be resorted to, and adopted only to reduce them when the plant seems declining in vigour, or has attained an undesirable size.

HEART'S-EASE. See PANSY.

HEAT is the prime agent employed by the Almighty Creator to call vegetable life into existence, to develop vegetable form, to effect all vegetable changes, and to ripen all vegetable produce. All these effects are performed most efficiently, in the case of every plant, at some different temperature or degree of heat; and he who ascertains most correctly those heats has taken a gigantic step towards excellence as a gardener. An uncongenial heat is as pernicious to vegetables as to animals. Every plant has a particular temperature, without which its functions cease; but the majority of them luxuriate most in a climate of which the extreme temperatures do not much exceed 32° and 90°. No seed will vegetate, no sap will circulate, in a temperature at or below the freezing point of water. No cultiva-

tion will render plants, natives of the torrid zone, capable of bearing the rigours of our winters, although their offspring, raised from seed, may be rendered much more hardy than their parents. Others are capable of resisting the greatest known cold to which they can be exposed; yet all have degrees of temperature most congenial to them, and if subjected to lower temperatures, are less or more injured proportionately to the intensity of that reduction. If the reduction of temperature be only slightly below that which is congenial, it merely causes the growth of the plant to diminish and its colour to become more pale; this effect being now produced by the plant's torpidity, or want of excitement to perform the requisite elaboration of the sap, as it is by over-excitement when made to vegetate in a temperature which is too elevated.

If blossoms are produced at all, they are unfertile, and the entire aspect of the plant betrays that its secretions are not healthy, and its functions are deadened. Mr. Knight says, "that melons and cucumber plants, if grown in a temperature too low, produce an excess of female blossoms; but if the temperature be too high, blossoms of the opposite sex are by far too profuse." The drier the air the greater is the amount of moisture transpired; and this becomes so excessive, if it be also promoted by a high temperature, that plants in hothouses, where it has occurred often, dry up as if burned. The justly-lamented Mr. Daniell has well illustrated this by showing, that if the temperature of a hothouse be raised only five degrees, viz., from 75° to 80°, whilst the air within it retains the same degree of moisture, a plant that in the lower temperature exhaled fifty-seven grains of moisture, would, in the higher temperature, exhale one hundred and twenty grains in the same space of time.

Plants, however, like animals, can bear a higher temperature in dry air than they can in air charged with vapour. Animals are scalded in the latter if the temperature is very elevated, and plants die under similar circumstances, as if boiled. MM. Edwards and Colin found kidney-beans sustained no injury, when the air was dry, at a temperature of 170°; but they died in a few minutes if the air was moist. Other plants under similar circumstances would perish probably at a much lower temperature; and the fact affords a warn-

ing to the gardener to have the atmosphere in his stoves very dry whenever he wishes to elevate their temperature for the destruction of insects or other purposes.

Certain plants flourish in hot-water springs, of which the temperature varies between the scalding heats of from 150° to 180° of Fahrenheit's thermometer; and others have been found growing freely on the edges of volcanoes, in an atmosphere heated above the boiling point of water. Indeed, it is quite certain that most plants will better bear, for a short time, an elevated temperature, which, if long continued would destroy them, than they can a low temperature. Thus a temperature much above the freezing point of water, to orchidaceous and other tropical plants, is generally fatal if endured by them for only a few minutes; whereas a considerable elevation above a salutary temperature is rarely injurious to plants. But this is not universally the case; for the elegant *Primula marginata* is so impatient of heat, that, although just about to bloom, it never opens a bud if brought into a room in which there is a fire.

The temperature should always be regulated, in our hothouses, with a due regard to the light. At night it should be so low as to put the circulation of the sap into a comparative state of rest; and in dull days the temperature should be full 10° lower than in those of bright sunshine.

HEATHS. See ERI'CA.

Propagation by Cuttings.—In order to be successful in striking the hard-wooded heaths, it is necessary to put a plant of each kind in gentle heat, to cause them to push forth young shoots. Whilst they are growing, the materials for the operation of propagation should be prepared: these are the requisite number of clear bell-glasses. It will be advantageous to have them of different sizes; the smallest 3½ inches, and the largest 6 inches diameter, with two sizes between. Also prepare the drainage by breaking a quantity of potsherds. These should be in three sizes, the largest about an inch across, the next half an inch, and the smallest the size of marrow-fat peas, with the dust sifted out from amongst them. Next, have the soil ready. The best is to be had from some dry moorland where the heather grows wild. Break the turves into a fine state, and pass it through a fine sieve, reserving the rougher pieces to cover the drainage with. The next

things to look after are the pots. If new, they must be placed in a tub of water for a few hours; if old, they must be well scoured and made perfectly clean. Lastly, procure a sufficient quantity of pure silver sand, a pair of propagating scissors, and a small ivory-handled knife of the very best material. All these being in readiness, see that the cuttings are in a fit state to take off the plants. If they have made fresh shoots an inch long, they are ready for use. Then take a small clean pot, invert it, and place it over the hole at the bottom of the pot for the cuttings, then fill in round a few of the largest potsherds, and cover them with some of the second size, and then, lastly, with a considerable quantity of the smallest size, cover these with a layer of the rough siftings. The whole of these should fill the pot to within two and a half inches of the rim of the pot. Upon that place an inch and a half of the heath mould, with a large admixture of the silver sand; level this last layer with a circular piece of wood, with a nail driven into the centre, to form a handle. Finish with a layer of the pure white sand quite level with the rim of the pot. Give a good watering with a fine rose pot, to settle the same. Then take off the cuttings with the scissors, and dress them with the knife; cut the bottom of the cutting clean off with a level cut, just at the part between the new and the old wood; then cut off the leaves close to the stem, without wounding its bark, about two-thirds of its length from the bottom. As each cutting is made, place it under the bell-glass upon the sand, till a sufficient number are made to fill the pot. Make a mark in the sand to show the size of the glass, and then proceed to put in the cuttings in regular rows across the pot, keeping the leaves just clear out of the sand. When they are all planted, give another gentle watering, to settle the sand firm; allow them to dry partially before the glass is put on. Then place them in a house where they can be shaded from the sun, and keep up a gentle heat of 55°, as near as possible. Wipe the glasses dry every morning, and as soon as the cuttings are rooted, remove them into a cooler house, and give a little air by placing three short pieces of wood, a quarter of an inch thick and two inches long, so as to form a triangle, and let the bell-glass rest upon them. In this house

it will still be necessary to shade them from the blazing sun. This is easily done by spreading some sheets of paper over them; but remove this shade instantly when the sun is overclouded. When they have been in this situation for a month, remove the glasses entirely, and a month afterwards commence potting them off in 3-inch pots, four in a pot, stopping them at the same time, to make them bushy. Place them in a cold frame, upon a layer of river-sand on coal-ashes; shade again for a time, and give air moderately. When they have made fresh roots expose them occasionally to gentle showers, but by no means to heavy rain. Give them due supplies of water in dry weather, and keep them clear of weeds. In these pots they must remain till the spring following. During the winter place them on a shelf, near the glass, in a light, airy greenhouse. About March, pot them singly into the same sized pots, shading them again till fresh roots are formed. They are then ready for the usual routine of culture. Heaths, with *soft wood* and free growth, are more easy to propagate, and do not require so much preparation; but in other respects the management is the same.

By Seed.—Several kinds of heaths produce plenty of good seed; even some that are extremely difficult to propagate any other way, such, for instance, as *E. elegans*, *E. odorata rosea*, *E. hibernica*, *E. triumphans*, and some others of similar habit. Fill the pots in the same way as for cuttings, only mix the top layer of sand with as much heath-mould; make the surface smooth, and sow the seed in spring on the surface, covering it as slightly as possible; water with the finest syringe, so that it may fall upon the seed like the finest dew; place the pots near the glass, shade from bright sun, and keep the surface just moist. The seedlings will soon come up, and require great care, or they will fog off. To prevent this give air daily. As soon as they can be handled transplant them into 5-inch pots rather thickly, but standing clear of each other. In this state they may remain for six or eight months, and then pot them off into 3-inch pots, four in a pot, and manage them afterwards in the same way as the cuttings.

Soil.—This has been already described above, in writing of the soil proper for the cuttings to root into; but for larger

plants it must not be sifted so fine. For very large plants do not sift it at all; for such, if a few pieces of sand-stone are mixed amongst the mould, they will be useful to allow the water to penetrate to the centre of the ball.

Potting.—Heaths thrive best if the mould is left below the rim of the pot from half an inch for small plants in 6-inch pots, to two inches in large ones. This space holds a supply of water which gradually sinks through, and effectually moistens the ball to the centre. Drain thoroughly with broken potsherds, half an inch for small plants, to three inches for very large ones.

Culture.—Cold pits or frames, in spring and autumn, are the best protection to place heaths in during their youth, and a good, airy, light, span-roofed greenhouse for them through winter and spring, when they are too large for the frames. In summer they should be set out of doors upon a thick bed of coal-ashes, behind a low wall or hedge. Whilst in this position they must have an abundant and constant supply of water. If the ball ever becomes thoroughly dry, the plants will certainly die; therefore, attend to this point of watering most rigidly and perseveringly. In winter they do not require so much; but even in that season they must be kept moderately, but constantly and thoroughly moistened.

Diseases.—Heaths are subject to go off at the point where the stem ends and the roots begin. This is caused often by an irregular supply of water, and cannot be cured when it once takes place. The plant may appear green and flourishing, and the roots fresh, and the ends are lively even when the stem is dead. Another fell disease is the *mildew*. This may be sometimes cured by first damping the plants infected, and then dusting them over with flowers of sulphur. This disease is often brought on by a long-continued damp atmosphere; and if that is not dried by a little heat, with abundance of air, the disease will spread rapidly, and soon destroy the plants. If only one or two are infected, they had better be sulphured, and placed by themselves till the mildew fungus is killed.

Insects.—See APHIS for cure, when the Green Fly attacks them.

HEATH-MOULD. See BOG-EARTH.

HEATHER. *Calluna vulgaris*.

HEBENSTREITIA. (Named after Pro-

fessor Hebenstreit, of Leipsic. Nat. ord., *Selagids* [Selaginacæ]. Linn., 14-*Didymania* 2-*Angiospermia*. Allied to *Selago*.)

Most of the Cape *Selagids* are well adapted for planting out in summer, in mixed borders. Greenhouse evergreen shrubs, except *H. denta'ta*, which is an annual; all from the Cape of Good Hope, and all white-flowered. Short young shoots in sandy peat, in spring, under a bell-glass; sandy, fibry loam, and a little peat. Summer temp., 50° to 75°; winter, 35° to 45°. *Denta'ta* by seed in early spring.

- H. albifo'ra* (white-flowered). 1. July. 1822.
- *capita'ta* (headed-flowered). 1. June. 1823.
- *chamadri'folia* (germander-leaved). 2. 1822.
- *cilia'ta* (hair-fringed). 1. June. 1815.
- *corda'ta* (heart-leaved). 1. July. 1774.
- *denta'ta* (toothed). 1. July. 1739.
- *erinoi'des* (erinus-like). 1. May. 1816.
- *frutico'sa* (shrubby). 1½. August. 1816.
- *integrifo'lia* (entire-leaved). 1. May. 1792.
- *sca'dra* (rough). 1. June. 1824.

HEDARO'MA. (From *hedys*, sweet, and *aroma*, perfume. Nat. ord., *Myrtileblooms* [Myrtacæ]. Linn., 16-*Monadelphina* 8-*Polyandria*.)

Evergreen stove trees, all purple-blossomed, and from Swan River. For culture, see *MYRTUS*.

- H. latifo'lia* (broad-leaved). May.
- *pinifo'lia* (pine-leaved). May.
- *thymo'i'des* (thyme-like). May.

HEDE'OMA. (From *hedeoma*, the Greek name of mint. Nat. ord., *Labiates* or *Lipworts* [Lamiacæ]. Linn., 2-*Dianthia* 1-*Monogynia*. Allied to *Cunila*.)

Hardy annuals. Seed in early spring; light, rich garden-soil.

- H. pulegio'i'des* (pennyroyal-like). ½. Blue. July. N. Amer.
- *thymo'i'des* (thyme-like). ½. Red. July. France.

HE'DERA. The Ivy. (*Hedra* is the Celtic word for cord, alluding to the Ivy's stems. Nat. ord., *Ivyworts* [Araliacæ]. Linn., 5-*Pentandria* 1-*Monogynia*.)

The common ivy (*H. he'lia*) may be propagated by seeds, but in all its varieties is quickest propagated by slips, inserted in a north border, in sandy soil, kept moist in the autumn. This is a far better plan than inserting it at once where it is intended to remain. Deep, rich soil suits the common ivy; the tender kinds should have lighter soil. For clothing dead trees, covering open fences, giving an air of antiquity, security, and warmth and dryness to buildings, and even producing architectural effects, and covering the ground in shady places with a green carpet, where scarcely anything else would grow, the ivy is invaluable.

GREENHOUSE EVERGREEN SHRUBS.

- H. aculea'ta* (prickly). White. Nepaul. 1816.
- *fra'grans* (fragrant). White. Nepaul. 1816.
- *macrophy'la* (large-leaved). White. N. Holland. 1831.

STOVE EVERGREEN SHRUBS.

- H. capita'ta* (headed-flowered). Green. August. W. Ind. 1779.

H. digita'ta (finger-leaved). White. March. E. Ind. 1818.

- *emargina'ta* (end-notched). Green. 1848.
- *ferrugi'nea* (rusty). White. W. Ind. 1826.
- *glomerula'ta* (glomerulated). 7. Yellow. April. Java. 1847.
- *pe'ndula* (weeping). Green. Jamaica. 1824.
- *umbraculi'fera* (umbrella-leaved). White. March. E. Ind. 1818.
- *Xalape'nsis* (Xalapan). White. Mexico. 1824.

HARDY EVERGREEN CLIMBERS.

- H. he'lia* (common). 40. Green. September. Britain.
- — *arborescens* (tree-like). 8. Green. Britain.
- — *Canarie'nsis* (Canary. Irish). 20. Green. October. Canaries.
- — *chrysoca'rpa* (yellow-berried). 30. Green. October. India.
- — *digita'ta* (finger-leaved). 20. Green. October. Britain. Shrub.
- — *fo'liis arge'nteis* (silver-striped-leaved). 20. Green. October. Britain.
- — *fo'liis au'reis* (gold-striped-leaved). 20. Green. October. Britain.
- — *Taurica* (Taurian). Green. October. Tauria. 1841.
- — *vulga'ris* (common). Green. Britain.

HEDGE properly includes every kind of fence; but the present details apply, for the most part, to growing fences. Abercrombie says, that all outward hedges designed as fences should have a ditch on the outside, three or four feet wide at top, three deep, sloping to one wide at bottom, raising a low bank on the inside on which to plant the hedge. Having lined out the width of the ditch, then along the inner edge lay a row of square spit turves, grass side downwards, to form the beginning of the bank, backing it up with spits of earths from the formation of the ditch, and top it with a little of the fine mould or crumbs; and then upon this proceed to lay the first row of plants. First let the sets be headed to about five or six inches, and the roots trimmed; then lay them upon the bed of turf with their tops outward, in an upward direction, about ten or twelve inches asunder, covering their roots with mould, also out of the ditch; and then lay another row of turf along upon the necks of the plants, and more mould from the ditch upon and behind the turf; and when the bank is thus raised a foot above the row of sets, plant another row in the same manner, placing each set against the spaces of those of the first row, so covering them with more earth from the ditch to the depth of three feet, sloping each side to one foot width at bottom, and trim up all remaining earth, throwing a sufficiency behind the top of the banking to bank up the whole even. But in planting for

an outward fence, some form the ditch and bank first as above, and plant the sets in two rows along the top; that is, after having formed the ditch and bank, then levelling the top, forming a foot of border all along a yard wide; plant the sets along its middle upright, in two rows a foot asunder, and six inches distant in each row, observing the same when intended to raise a hedge at once from seed sowed where you design the hedge to be, sowing them along the top in drills a foot asunder. Sometimes, when hedges are designed for middle fences to divide fields, a two-sided bank is raised a yard high, and as broad at top, having a slight ditch on each side; and each side of the bank is formed with square spit turves from the adjoining ground, and the middle filled up with mould from the ditches on each side; so that when finished, it forms a yard-wide border all the way along the top, and along the middle of which plant two rows of hedge-sets or seed, in drills, as before observed. But in places where no ditch nor raised bank is required, as may be the case for middle hedges in the interior parts of grounds, especially in gardens, then the place for the hedge being marked out on the level ground two or three feet broad, dig it along one good spade deep at least, and then plant your sets of any sort in two rows, ranging along the middle; or, if you design to sow seeds, &c., of any sort at once, where you intend to have the hedge, sow them in two drills a foot asunder the whole length.

In respect to general culture of these sorts of hedges it must be remarked, that all such as are exposed to cattle must, as soon as planted, be fenced either with a stake and bush hedge, with hurdles, or with rails and open paling, for four or five years, till the hedge grows up, observing not to place the fence too close to the hedge to interrupt its growth. The hedge must, also, be duly weeded while young, and this should be particularly attended to the first two years.

Evergreen Hedge-shrubs are Holly, Yew, Laurel, Laurustinus, Phillyrea, Alaternus, Bay, Furze, and Evergreen Oak; but the Holly and Yew form the best hedges for general use.

Deciduous kinds.—Hawthorn, Blackthorn, Crab, Elder, Hornbeam, Beech, Elm, Lime-tree, and Alder are all proper either for middling or tall hedges, as they

may be trained up from about six or eight to fifteen or twenty feet high, and the Elm to double that height if required. Privet is also sometimes used for moderately high hedges; and for low hedges, the Rose, Sweet-briar, Syringa, and Barberry.

All full-trained hedges, in order to preserve them in proper form, must be clipped, both on the sides and top, once or twice a year, but never less than once; and the best time of the year for this work is summer, from about the middle or latter end of June to the end of August, for then the hedges will have made their summer shoots, which should always, if possible, be clipped the same season while in leaf, and before the shoots become hard, whereby you will be able to perform the work more expeditiously and with greater exactness, for regular hedges should be cut as even as a wall on the sides, and the top as straight as a line; observing, after the hedge is formed to its proper height and width, always to cut each year's clipping nearly to that of the former year, particularly on the sides; for by no means suffer them to grow above a foot or two wide, nor suffer them to advance upon you too much at top, where it is designed or necessary to keep them to a moderate height. But to keep hedges in perfectly good order, they should be clipped twice every summer; the first clipping to be about Midsummer, or soon after, when they will have made their summer shoots; and as they will shoot again, what may be called the autumn shoot, the second clipping is necessary towards the middle or latter end of August, and they will not shoot again that year. However, when it does not suit to clip them but once in the summer, the clipping should not be performed until the beginning of August; for, if cut sooner, they will shoot again, and appear almost as rough the remainder of the summer and all winter as if they had not been clipped. Very high hedges are both troublesome and expensive to cut. The clipping is sometimes performed by the assistance of a high machine, scaffolding, or stage, twenty or thirty feet high or more, having platforms at different heights for the men to stand upon, the whole made to move along upon wheels. It is composed of four long poles for uprights, well framed together, eight or ten feet wide at bottom, narrowing gradually to

four or five at top, having a platform or stage at every seven or eight feet high, and one at the top of all; and upon these the man stands to work, each platform having a rail, waist high, to keep the man from falling, and a sort of ladder formed on one side for the man to ascend, and at bottom for low wheels to move it along. Upon this machine a man may be employed on each stage or platform, trimming the hedge with shears, and sometimes with a garden hedge-bill fixed on a handle five or six feet long, which is more expeditious, though it will not make so neat work as cutting with the shears.

A hedge is not only an imperfect screen, but in other respects is worse than useless, since nothing can be trained to it, and its roots exhaust the soil in their neighbourhood very considerably. As the south fence of a garden, it may be employed; and hawthorn, in some respects, is the worst shrub that could be made use of. It is the nursery of the same aphides, beetles, and caterpillars, that feed upon the foliage of the apple and pear, from whence they often spread to the whole garden. Evergreen are better than deciduous hedges, and more especially those of the holly, which is not so slow a grower as is generally imagined.

In a cloudy day, in April or May, the wind seems to be actually refrigerated in passing through a thick hawthorn hedge; and this may be accounted for on the same principle that cool air is obtained in the houses of India by sprinkling branches of trees with water in their verandas. Holly, laurel, and most evergreens, exhale but little moisture from their leaves, except for about a month in June; consequently, in April and May, when we most require warmth, and in September and October, the leaves of these, when fully exposed to the sun, become heated to the touch to 85° or 90°. Added to this, hoar frost, or a deposition of moisture of any kind, never attaches so readily, or remains for so long a time, upon the foliage of evergreens as upon the sprays of deciduous shrubs; consequently, the refrigeratory power is greatly diminished. When the garden is of considerable extent, three or four acres and upwards, it admits of cross-walls or fences for an increase of training surface and additional shelter.

Hedges should always be clipped into a conical form, as the diminution of the

branches towards the top increases their development at the bottom.

Furze makes one of the best and handsomest of hedges if kept regularly clipped. Upon the formation of such a hedge, we have the following remarks by Mr. McI., of Hillsborough:—The most ancient, and perhaps the most simple of all fences, are walls made of turf. These walls, however, are much injured by the atmosphere, and the rubbing and butting of the cattle. To guard against this they should be planted or sown with the *Ulex Europæus*, or *Furze*. The roots of this plant will soon penetrate the turf, and tend to bind the wall. The plants not only afford shelter as well as food for the cattle, but add to the height of the wall, and give it a formidable appearance. When walls are made for this, the foundation should be three feet wide, and tapering to fifteen inches at top. As the plants advance in growth, they should be regularly trimmed with the shears: by proper attention to this they will be prevented from growing too tall and thin at the bottom. If this is annually repeated, the plants will be longer preserved in a healthy and vigorous state: clipping has also a good effect in checking the *furze* from spreading over the field. A good and substantial fence may thus be quickly formed on a soil that will not produce a biding fence of any other kind.

Sweet-briar (*Rosa rubiginosa*) makes a good hedge. Its hews may be sown in the autumn, as soon as ripe, or, which is better, in the month of March, having kept them, in the mean time, mixed with sand. But it is far more convenient to buy young plants, and to plant them a foot apart early in the month of November. Let them grow as they like for the first year, and cut them down to the ground the second; they will then spring up and require no more care than occasionally trimming with the pruning-knife or shears to keep the hedge in shape. When it gets naked to the bottom, it must be again cut down.—*Gard. Chron.*

HEDGE-HOG THISTLE. *Cactus* (*Echinocactus*).

HEDGE HYSSOP. *Gratiola*.

HEDGE MUSTARD. *Erysimum*.

HEDGE NETTLE. *Stachys*.

HEDWIGIA, of Swartz. (Named after John Hedwig, a botanist. Nat. ord., *Amyrids* [*Amyridaceæ*]. Linn., 8-*Octandria* 1-*Monogynia*.)

The *Amyrids* are closely allied to the Orange tribe. *Beaumea sucrier*, a substitute for *Copaiba*, is obtained from this *Hedwigia*. Stove evergreen tree. Cuttings of ripe shoots in sandy soil, and in a good heat; sandy loam and a little peat. Summer temp., 60° to 85°; winter, 50° to 55°.

H. balsamifera (balsam-yielding). 40. White. August. W. Ind. 1820.

HEDYCHIUM. (From *hedys*, sweet, and *chion*, snow; in reference to the sweet-scented, snow-white flowers of *H. maximum* and *coronarium*, the best two garden-plants of the genus. Nat. ord., *Gingerworts* [Zingiberaceæ]. Linn., 1-*Monandria* 1-*Monogynia*.)

Stove herbaceous plants. Division of the plants before fresh potting them; loam and peat, with a portion of sand and dried cow-dung. They must have plenty of water and light when growing. It should be tried to give them their rest period by keeping them cooler and drier in winter, and, if well grown before, the advancing heat in spring and summer will bring up the beautiful flowers. Summer temp., 60° to 85°, with moist atmosphere when growing, cooler and drier when flowering; winter, 50° to 55°.

- H. acuminatum* (long-pointed). 4. White. July. E. Ind. 1820.
- *angustifolium* (narrow-leaved). 5. Scarlet. August. E. Ind. 1815.
- *aurantiacum* (orange-coloured). 5. Orange. July. E. Ind. 1812.
- *carneum* (flesh-coloured). 4. Pink. August. E. Ind. 1823.
- *coccineum* (scarlet). 6. Scarlet. July. E. Ind. 1815.
- *coronarium* (garland). 5. White. E. Ind. 1791.
- *elatum* (tall). 5. Pale red. E. Ind. 1818.
- *clipticum* (oval). 5. White. August. E. Ind. 1804.
- *flavescens* (yellowish). 6. Yellow. June. India. 1822.
- *flavum* (yellow). 3. Yellow. July. Nepal. 1822.
- *Gardnerianum* (Gardner's). 7. Yellow. July. E. Ind. 1819.
- *glaucum* (milky-green). 4½. White. July. E. Ind. 1822.
- *gracile* (slender). 3. White. June. Bengal. 1823.
- *heteromallum* (variable-haired). 5. Yellow. July. Indies. 1822.
- *longifolium* (long-leaved). 6. Red. June. E. Ind. 1819.
- *maximum* (largest). 8. White. August. E. Ind. 1820.
- *speciosum* (showy). 6. Pale yellow. August. E. Ind. 1823.
- *spicatum* (spiked). 3. Yellow. June. India. 1810.
- *stenopetalum* (narrow-petaled). 7. White. April. India. 1830.
- *thyrsiforme* (thyrses-formed). 4. White. July. Nepal. 1818.
- *urophyllum* (tailed-leaved). 4. Yellow. August. India. 1823.
- *villosum* (shaggy). 3. Cream. July. E. Ind. 1823.

HEDYSARUM. (A plant's name adopted from *Theophrastus*. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 17-*Dialophia* 4-*Decandria*.)

Annuals and biennials in the open border, in spring; perennials by division of the plant in spring; common soil. The dwarfier ones are pretty for mantling knolls and rock-works.

HARDY ANNUAL.

H. carnosum (fleshy). 4. Purple. July. Barbary. 1820.

HARDY BIENNIALS.

H. coronarium (garland). 4. Scarlet. June. Italy. 1596.
— *palidum* (pale). 3. Pale red. June. N. Africa. 1820.

HARDY HERBACEOUS PERENNIALS.

- H. alpinum* (alpine). 2. Purple. June. Siberia. 1798.
- — *pedicelare* (long-flower-stalked). Purple. June. Siberia.
- *Altaicum* (Altain). 4. Purple. July. Siberia. 1818.
- *argophyllum* (white-leaved). Purple. June. Altaia. 1827.
- *argentum* (silvery). Purple. June. Siberia. 1827.
- *brachyspermum* (short-standarded). 1½. Purple. July. Siberia. 1817.
- *caudatum* (white). 4. Purple. May. Tauria. 1824.
- — *humile* (humble). 4. Purple. June. Tauria. 1817.
- *Caucasicum* (Caucasian). 1. Purple. July. Caucasus. 1820.
- *consanguineum* (closely-allied). 1. Purple. July. Siberia. 1820.
- *cretaceum* (chalky). 1. Purple. July. Siberia. 1819.
- *elongatum* (lengthened). Purple. June. Russia. 1823.
- *fruticosum* (shrubby). 4. Purple. June. Siberia. 1782.
- *grandiflorum* (large-flowered). 1½. Purple. June. Tauria. 1821.
- *Ibericum* (Iberian). 4. Purple. July. Iberia. 1818.
- *lasiocarpum* (hairy-podded). 1. Purple. Siberia.
- *obscurum* (obscure). 4. Purple. July. Alps. 1640.
- *polymorphum* (many-formed). Rose. June. Altaia. 1828.
- *roseum* (roseate). 4. Pink. August. Caucasus. 1803.
- *rutidocarpum* (wrinkled-podded). 4. Purple. August. Siberia. 1826.
- *splendens* (shining). 4. Cream. July. Siberia. 1819.
- *Tauricum* (Taurian). 4. Pale purple. July. Tauria. 1804.
- *varium* (variable). 1. White. July. South Europe. 1820.
- *venustum* (lovely). Purple. June. Altaia. 1828.

HEEL. When a cutting is taken off with a small portion of the older wood from which it sprang, that older portion is called the heel.

HEIMIA. (Named after *Dr. Heim*, a German. Nat. ord., *Loosestrifes* [Lythraceæ]. Linn., 11-*Dodecandria* 1-*Monogynia*. Allied to *Lythrum*.)

Heimia is the only *Loosestrife* with yellow flowers. Half-hardy evergreen shrubs with yellow

low flowers. Cuttings of short shoots in sandy soil, under a hand-light, in May; sandy loam and a little peat. They require the protection of a cold pit in winter, but would do against a conservative wall, where they could be protected from severe frost.

H. linariaefolia (linaria-leaved). 5. S. Amer. 1829.

— *myrtifolia* (myrtle-leaved). 5. S. Amer. 1826.

— *salicifolia* (willow-leaved). 5. August. Mexico. 1821.

— *grandiflora* (large-flowered). 5. September.

HEINSIA. (Named after *M. Heinsius*. Nat. ord., *Cinchonads* [Cinchonaceæ]. Linn., 5-Pentandria 1-Monandria. Allied to *Gardenia*.)

Stove evergreen shrub. Cuttings of young shoots in sand, under a bell-glass, and in a brisk bottom-heat; fibry peat and sandy loam, with a little dried leaf-mould. Summer temp., 60° to 80°; winter, 48° to 53°. It would probably succeed grafted on *Gardenia florida*.

H. jasminiflora (jasmine-flowered). 4. White. March. Sierra Leone. 1824.

HEISTERIA. Bois Perdrix. (Named after *L. Heister*, a Swedish botanist. Nat. ord., *Oleaceæ* [Oleaceæ]. Linn., 10-Decandria 1-Monogynia. Allied to *Olex*.)

This is the source of the Partridge-pea of Martinique, but not of the Partridge-wood, as has been erroneously asserted. Stove evergreen tree. Cuttings of firm young shoots in a brisk heat; sandy loam and a dash of peat. Summer temp., 60° to 85°; winter, 50° to 55°.

H. coccinea (scarlet). 20. Scarlet. W. Ind. 1822.

HELICIA. (From *helcium*, a horse-collar; in reference to the curious formation of the flowers. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-Gynandria 1-Monogynia. Allied to *Trichopilia*.)

Stove orchid. Division of the plant; shallow basket, in fibry peat, sphagnum, charcoal, and decayed wood. Summer temp., 60° to 90°; winter, 50° to 60°.

H. sanguinolenta (bloody). Green, brown, white. Guayaquil. 1848.

HELENIUM. (Named after the beautiful *Helena*, cause of the Trojan war. Nat. ord., *Compositæ* [Asteraceæ]. Linn., 19-Syngenesia 2-Superflua.)

Hardy herbaceous perennials, with yellow flowers. By division of the plant in spring; common garden-soil. There are some annuals and biennials, but not deserving cultivation.

H. autumnale (autumnal). 3. September. N. Amer. 1729.

— *canaliculatum* (channelled), 3. August. N. Amer. 1800.

— *Mexicanum* (Mexican). 3. August. Mexico. 1825.

— *pubescens* (downy). 3. August. N. Amer. 1776.

— *pumilum* (dwarf). 1. August. 1818.

— *undulatum* (waved-leaved). 3. September. California. 1830.

HELIANTHEMUM. Sun Rose. (From *helios*, the sun, and *antheon*, a flower. Nat. ord., *Rock-roses* [Cistaceæ]. Linn., 13-Polyandria 1-Monogynia.)

If gardeners would turn their attention to these Rock-roses, and cross them judiciously, they might expect in time to produce a race which would rival the *Verbenas*. Annuals, by seeds in the open border, in April. A few of the best shrubby ones are rather tender, and young plants might be saved in a cold pit. Shrubby evergreens, by inserting little pieces of ripened and half-ripened shoots with the leaves attached, in June, in sandy soil, in a shady place, under a hand-light. Few things can surpass the beauty of these plants when trailing over stones, and banks, and rock-works, in spring and summer. In such positions, the tenderest merely require, at times, an evergreen branch placed over them in winter; sandy loam, with a little peat, suits them well.

ANNUALS.

H. Ægyptiacum (Egyptian). 2. White. June. Egypt. 1764.

— *eriocaulon* (woolly-stemmed). 2. Yellow. Spain. 1817.

— *guttatum* (spotted-flowered). 2. Yellow. June. England.

— *ledifolium* (ledum-leaved). 2. Yellow. June. England.

— *Niloticum* (Nile). 2. Yellow. June. South Europe. 1817.

— *majus* (larger). 1. Yellow. Europe. 1817.

— *plantaginæum* (plantain-like). 2. Yellow. June. South Europe. 1823.

— *punctatum* (dotted). 2. Yellow. July. South France. 1816.

— *salicifolium* (willow-leaved). 2. Yellow. July. South Europe. 1759.

— *sanguineum* (bloody-stemmed). 2. Yellow. July. Spain. 1826.

— *villosum* (shaggy). 2. Yellow. July. Spain. 1823.

HERBACEOUS PERENNIALS.

H. Canadense (Canadian). 1. Yellow. June. N. Amer. 1799.

— *Carolinianum* (Carolina). 1. Yellow. July. Carolina. 1823.

— *globulariaefolium* (globular-leaved). 2. Yellow. June. Portugal. 1826.

— *rosmarinifolium* (rosemary-leaved). 1. Pale yellow. June. Canada. 1823.

— *tuberosa* (tuberaria). 2. Yellow. June. South Europe. 1752.

EVERGREEN TRAILERS.

H. acuminatum (long-pointed). 2. Yellow. June. Nice. 1820.

— *alpestre* (rock). 2. Yellow. June. Germany. 1818.

— *angustifolium* (narrow-leaved). 2. Yellow. June. 1800.

— *canum* (hoary). 2. Yellow. June. South Europe. 1772.

— *confusum* (confused). 2. White. June. South Europe.

— *croceum* (copper-coloured). 2. Yellow. July. Spain. 1800.

— *dichotomum* (twin-branched). 1. Yellow. July. Spain. 1826.

— *grandifolium* (large-flowered). 1. Yellow. June. Italy. 1800.

— *hispidium* (bristly). 2. White. South Europe. 1816.

- H. hyssopifolium* (hyssop-leaved). $\frac{1}{2}$. Yellow. May. Italy.
- *cupreum* (copper-coloured). $\frac{1}{2}$. Copper. May. Naples.
- *multiflex* (double-flowered). $\frac{1}{2}$. Copper. May. Italy.
- *crocatum* (saffron-coloured). $\frac{1}{2}$. Copper. June. Europe.
- *italicum* (Italian). 1. Yellow. August. Italy. 1799.
- *Lagascæ* (Lagasca's). $\frac{1}{2}$. Yellow. July. Spain. 1826.
- *leptophyllum* (fine-leaved). 1. Yellow. Spain. 1818.
- *lucidum* (shining-leaved). 1. Yellow. June. 1826.
- *macranthum* (large-flowered). 1. White, yellow. July.
- *multiflex* (double-flowered). 1. White, yellow. June. Europe.
- *marifolium* (marum-leaved). $\frac{1}{2}$. Yellow. May. South Europe.
- *Milleri* (Miller's). $\frac{1}{2}$. Yellow. June. South Europe.
- *mutabile* (changeable). $\frac{3}{4}$. Red, yellow. July. Spain. 1829.
- *nudicaule* (naked-stemmed). $\frac{1}{2}$. Yellow. June. Spain. 1826.
- *nummularium* (moneywort-leaved). $\frac{1}{2}$. Yellow. July. Spain. 1752.
- *obovatum* (reversed-egg-leaved). 1. Yellow. Spain. 1826.
- *Oelandicum* (Oeland). $\frac{3}{4}$. Yellow. July. Germany. 1816.
- *origanifolium* (marjoram-leaved). $\frac{1}{2}$. Yellow. Spain. 1795.
- *ovatum* (egg-leaved). $\frac{1}{2}$. Yellow. Geneva. 1818.
- *penicillatum* (pencilled). $\frac{1}{2}$. Yellow. June. Spain. 1817.
- *pilosum* (hairy). $1\frac{1}{2}$. White. July. South France. 1831.
- *polifolium* (polium-leaved). $\frac{1}{2}$. White. June. England.
- *procumbens* (lying-down). $\frac{1}{2}$. Yellow. South Europe.
- *pulchellum* (neat). $\frac{1}{2}$. Yellow. May. South Europe. 1820.
- *pulverulentum* (powdered). $\frac{3}{4}$. White. June. France.
- *rhodanthum* (red-flowered). $\frac{1}{2}$. Red. June. Spain. 1800.
- *roseum* (roseate). $\frac{1}{2}$. Pink. June. South Europe. 1815.
- *multiflex* (double-flowered). $\frac{1}{2}$. Pink. June. 1815.
- *stramineum* (straw-coloured). $\frac{1}{2}$. Straw. Europe.
- *multiflex* (double-flowered). $\frac{1}{2}$. Striped. Europe.
- *sulphureum* (sulphur-coloured). Pale yellow. Spain. 1795.
- *Surrejanum* (Surrey). $\frac{3}{4}$. Yellow. August. England.
- *Tauricum* (Taurian). 1. Yellow. June. Tauria.
- *tomentosum* (white-downed). $\frac{3}{4}$. Yellow. July. Scotland.
- *venustum* (beautiful). $\frac{1}{2}$. Red. June. South Europe. 1800.
- *strobiliferum* (double-flowered). $\frac{1}{2}$. Red. June. South Europe. 1800.
- *violaceum* (violet-calyxed). 1. White. Spain. 1826.
- *vulgare* (common-dwarf). $\frac{1}{2}$. Yellow. June. Britain.
- *plenum* (double-flowered). $\frac{1}{2}$. Yellow. June.

EVERGREEN SHRUBS.

- H. Algarvense* (Algarve). 3. Yellow. July. Portugal. 1800.
- *Apenninum* (Apennine). $\frac{1}{2}$. White. June. Italy. 1731.
- *barbatum* (bearded-stipuled). 1. Yellow. June. South Europe. 1820.
- *Barbettei* (Barrelier's). 1. Yellow. July. Italy. 1825.
- *Canariense* (Canary). $1\frac{1}{2}$. Yellow. June. Canaries. 1790.
- *caudatum* (white-leaved). 3. Yellow. June. Spain.
- *cane'scens* (hoary). $\frac{1}{2}$. Red. June.
- *cheiranthoides* (stock-like). 3. Yellow. June. Portugal. 1818.
- *ciliatum* (hair-fringed). 1. Red. June. South Europe.
- *cine'reum* (grey). 1. Yellow. July. Spain.
- *confertum* (close-flowered). 1. Yellow. August. Teneriffe.
- *crassifolium* (thick-leaved). 1. Yellow. June. Barbary. 1818.
- *diversifolium* (various-leaved). $\frac{1}{2}$. Flame. June. Europe.
- *ellipticum* (oval-leaved). 3. Yellow. July. Egypt.
- *ericoides* (heath-like). $1\frac{1}{2}$. Yellow. June. South Europe.
- *farinosum* (mealy). White. June. Spain.
- *formosum* (beautiful). 4. Yellow. Portugal. 1780.
- *glaucum* (milky-green-leaved). 2. Yellow. July. Spain. 1815.
- *glomeratum* (round-headed). 1. Yellow. June. Mexico. 1823.
- *glutinosum* (clammy). 2. Yellow. July.
- *halimifolium* (sea-purslane-leaved). 4. Yellow. July. Spain. 1656.
- *hirtum* (hairy-calyxed). 1. Yellow. June. Spain. 1759.
- *involutum* (involucred). 3. Yellow. Spain. 1826.
- *juniperinum* (juniper-like). 1. Yellow. July. South Europe. 1800.
- *Kahiricum* (Kahirian). 1. Yellow. June. Egypt. 1820.
- *læve* (smooth). 1. Yellow. June. Spain. 1826.
- *lasianthum* (hairy-flowered). 3. Yellow. June. Spain. 1826.
- *lavandulifolium* (lavender-leaved). 1. Yellow. June. South France. 1817.
- *libanotis* (rosemary-leaved). 1. Yellow. South Europe. 1752.
- *lignosum* (woody). $\frac{1}{2}$. Yellow. June. South Europe. 1806.
- *linearis* (narrow-leaved). 1. White. June. South Europe. 1818.
- *Lippii* (Lippius's). 1. Yellow. Egypt. 1820.
- *lunulatum* (crescent-leaved). $\frac{1}{2}$. Yellow. July. Spain. 1826.
- *marjoranifolium* (marjoram-leaved). $\frac{1}{2}$. Yellow, white. June.
- *microphyllum* (small-leaved). $\frac{1}{2}$. Yellow. June. Europe. 1800.
- *molle* (soft). $1\frac{1}{2}$. Yellow. July. Spain. 1817.
- *mutabile roseum* (rosy-changeable). $\frac{1}{2}$. Red. July. South Europe.
- *ocymoides* (basil-like). 3. Yellow. June. Spain. 1800.
- *paniculatum* (panicked). $\frac{1}{2}$. Yellow. July. Spain. 1826.
- *racemosum* (racemed). 1. White. July. South Europe. 1820.

- H. rugosum* (wrinkled). 3. Yellow. June. Portugal. 1800.
 — *scabrosum* (rough). 3. Yellow. Portugal. 1775.
 — *squamatum* (scaly). 1. Yellow. June. Spain. 1815.
 — *strictum* (upright). 1. White. June. Spain. 1820.
 — *thymifolium* (thyme-leaved). 1½. Yellow. July. Spain. 1658.
 — *umbellatum* (umbel-flowered). 2. White. July. South Europe. 1731.
 — — *erectum* (straight-stemmed). White. June. South Europe.
 — — *subdecumbens* (leaning). White. July. South Europe.
 — *versicolor* (party-coloured). 1. Red, white. July. South Europe. 1800.
 — *virgatum* (twiggy). ¾. White. Barbary. 1818.

HELLIANTHUS. Sunflower. (From *helios*, the sun, and *anthos*, a flower; in reference to the opinion that the flowers turn round after the sun. Nat. ord., *Compositæ* [Asteraceæ]. Linn., 19-Syngenesia 2-Superflua.)

Hardy herbaceous plants, all yellow-flowered; well fitted for the back of flower-borders and the front of shrubberies, where such modes of planting prevail. The annuals, such as the common Sunflower, should be sown in a slight hotbed, and afterwards transplanted; the perennials must be divided in the spring; common, good soil; a few of the tenderest want a little protection in very cold and wet winters.

ANNUALS.

- H. annuus* (annual. Common). 6. July. S. Amer. 1596.
 — *Indicus* (dwarf-Indian). 3. July. Egypt. 1785.
 — *ovatus* (egg-leaved). 4. Mexico. 1829.
 — *petiolaris* (long-leaf-stalked). 3. September. Arkansas. 1826.
 — *speciosus* (showy). 5. August. Jorulla. 1833.
 — *tubæformis* (tube-formed). 5. July. Mexico. 1799.

PERENNIALS.

- H. angustifolius* (narrow-leaved). 3. September. N. Amer. 1799.
 — *altissimus* (tallest). 8. August. N. Amer. 1731.
 — *atro-rubens* (dark-red-eyed). 3. August. N. Amer. 1732.
 — *cornifolius* (cornus-leaved). 3. August. Mexico. 1825.
 — *decapetalus* (ten-petaled). 6. September. N. Amer. 1759.
 — *diffusus* (spreading). 3. N. Amer. 1821.
 — *divaricatus* (straggling). 6. N. Amer. 1759.
 — *excelesus* (lofty). 8. Mexico. 1820.
 — *giganteus* (gigantic). 10. N. Amer. 1714.
 — *Hookeri* (Hooker's). 3. September.
 — *latifolius* (lively-flowered). 3. August. N. Amer. 1810.
 — *lenticularis* (pea-shaped). 1827.
 — *linearis* (narrow-leaved). 2. September. Mexico. 1823.
 — *longifolius* (long-leaved). 6. Georgia. 1812.
 — *macrophyllus* (large-leaved). 6. N. Amer. 1800.
 — *Missouriensis* (Missouri). 3. Missouri. 1821.
 — *mollius* (soft). 4. August. N. Amer. 1805.
 — *multiflorus* (many-flowered). 6. N. Amer. 1597.
 — — *plenus* (double-flowered). 6. N. Amer. 1797.
 — *parviflorus* (small-flowered). 3. July. Mexico. 1826.

- H. patens* (spreading). 3. August. N. Amer. 1829.
 — *pauciflorus* (few-flowered). 2. August. Louisiana. 1824.
 — *prostratus* (prostrated). 2. August. N. Amer. 1800. Trailer.
 — *pubescens* (downy). 4. N. Amer. 1759.
 — *strumosus* (swollen). 8. N. Amer. 1710.
 — *trachelifolius* (trachelium-leaved). 6. September. N. Amer. 1825.
 — *trilobatus* (three-lobed). 3. September. Mexico. 1824.
 — *tuberosus* (tuberous. Jerusalem Artichoke). 8. September. Brazil. 1617.
 — *villosus* (shaggy). 3. August. N. Amer. 1820.
 See JERUSALEM ARTICHOKE and SUNFLOWER.

HELICHRYSUM. (From *helios*, the sun, and *chrysos*, gold; referring to the beauty of the flowers. Nat. ord., *Compositæ* [Asteraceæ]. Linn., 19-Syngenesia 2-Superflua. Allied to *Aphelexis*.)

Many may be raised from seed; others, such as hardy and greenhouse herbaceous, by division and cuttings in spring, in sandy soil, under a hand-glass; evergreen shrubs from the Cape, if small side-shoots are taken off when getting firm at their base, will strike freely in sandy, peaty soil, under a bell-glass; peat and loam, three of the former to one of the latter. Temp. for greenhouse kinds, winter, 40° to 45°. *Stæchas* is the hardiest shrubby kind, flourishing in a sheltered place in dry, calcareous soil. *Angustifolium*, *congestium*, and *fruticans* are the next in point of hardness, and probably would do on a conservative wall.

HARDY ANNUALS.

- H. bicolor* (two-coloured). 3. Yellow. July. Van Diemen's Land. 1835.
 — *bracteatum* (bracted). 4. Pale yellow. September. N. Holland. 1799.
 — — *involutero-utido* (whitish-involucered). 3. Yellow. 1833.
 — *robustum* (robust). White, yellow. July. Swan River. 1839.
 — *spectabile* (showy). 2. Orange. June. Swan River. 1840.

HARDY HERBACEOUS PERENNIALS.

- H. arenaarium* (sand). 1. Yellow. August. Europe. 1739.
 — *candidissimum* (whitest). 2. Pale yellow. June. Caspian. 1823.
 — *macranthum* (large-flowered). Blush. Swan River. 1837.
 — *niueum* (snowy). 4. White. Yellow. July. Swan River. 1837.
HARDY EVERGREEN SHRUBS.
H. angustifolium (narrow-leaved). 2. Yellow. August. Naples. Half-hardy.
 — *conicum* (conical). 2. Yellow. July. South Europe. 1824.
 — *rupestre* (rock-inhabiting). Yellow. June. Naples. 1830.
 — *Stæchas* (common-shrub). 2. Yellow. August. Europe. 1629.

GREENHOUSE HERBACEOUS PERENNIALS.

- H. apiculatum* (small-pointed). 1½. Yellow. Van Diemen's Land. 1804.
 — *argenteum* (silvery). 2. White. June. Cape of Good Hope. 1800.
 — *crispum* (curled). 6. Pink. Cape of Good Hope. 1809.
 — *cylindricum* (cylindrical). 1. Yellow. June. Cape of Good Hope. 1780.

- H. cymosum* (cymed). 1½. Yellow. June. Africa. 1731.
 — *dealbatum* (whitened). 1½. White. Van Diemen's Land. 1812.
 — *odoratissimum* (sweetest-scented). 2. Yellow. June. Cape of Good Hope. 1691.
 — *utilans* (shining-flowered). 1. Red, yellow. June. Cape of Good Hope. 1731.
 — *scorpioides* (scorpion-like). Yellow. N. Holland. 1838.

GREENHOUSE EVERGREEN SHRUBS.

- H. acuminatum* (sharp-pointed). 3. White. July. Cape of Good Hope. 1823.
 — *affine* (related). 1½. Pale yellow. August. Cape of Good Hope.
 — *arborescens* (tree-like). 6. White. May. Cape of Good Hope. 1770.
 — *cephalotes* (large-headed). 4. Pink. June. Cape of Good Hope. 1789.
 — *congestum* (close-headed). 3. Purple. June. Cape of Good Hope. 1791.
 — *crassifolium* (thick-leaved). 1. Yellow. August. Cape of Good Hope. 1774.
 — *dasyanthum* (thick-flowered). 4. Yellow. July. Cape of Good Hope. 1812.
 — *diosmaefolium* (diosma-leaved). 1½. White. June. Cape of Good Hope. 1812.
 — *divaricatum* (spreading). 3. White. July. Cape of Good Hope. 1820.
 — *ericoides* (heath-like). 1½. Pink. June. Cape of Good Hope. 1774.
 — *fruticans* (shrubby). 3. Yellow. July. Cape of Good Hope. 1779.
 — *fulgidum* (shining). 2. Yellow. July. Cape of Good Hope. 1774.
 — *grandiflorum* (large-flowered). 3. White. July. Cape of Good Hope. 1731.
 — *helianthemifolium* (helianthemum-leaved). 1. White. July. Cape of Good Hope. 1774.
 — *lasiocaulon* (woolly-stemmed). 3. White. July. Cape of Good Hope. 1823.
 — *orientale* (eastern). 1½. Yellow. June. Africa. 1620.
 — *paniculatum* (panicked). 2. White. July. Cape of Good Hope. 1800.
 — *patulum* (spreading). 3. White. May. Cape of Good Hope. 1771.
 — *rigidum* (stiff-leaved). 1½. White. July. Cape of Good Hope. 1801.
 — *vestitum* (clothed). 2. White. August. Cape of Good Hope. 1774.

HELICO'NIA. (From *helicon*, a hill, consecrated to the Muses; in reference to the affinity of this genus to *Musa*. Nat. ord., *Musads* [Musaceæ]. Linn., 5-Pentandria 1-Monogynia.)

The fleshy roots of *H. psittacorum* are eatable. Stove herbaceous perennials. Division of the roots; strong, rich, loamy soil. Summer temp., 60° to 90°, with plenty of moisture; winter, 50° to 60°.

- H. bicolor* (two-coloured). 3. White, crimson. Brazil. 1828.
 — *Brazilienis* (Brazilian). 3. Scarlet. August. Brazil. 1820.
 — *dealbata* (whited). 3.
 — *hirsuta* (hairy-flowered). 5. Orange. S. Amer. 1800.
 — *Indica* (Indian). 4. Madagascar. 1816.
 — *psittacorum* (parrot-beaked). 4. Orange. August. W. Ind. 1797.
 — *pulverulenta* (dusted-leaved). 2. Greenish-scarlet. July. S. Amer. 1830.

H. Swartziana (Swartz's). 4. Yellow. July. Jamaica. 1800.

HELIOCA'RPUS. (From *helios*, the sun, and *karpos*, a fruit; in reference to the fringes on the cells, or carpels, of the fruit. Nat. ord., *Lindenblosses* [Tiliaceæ]. Linn., 11-Dodecandria 1-Monogynia. Allied to *Sparmannia*.)

Stove evergreen shrub. Cuttings of half-ripened shoots in summer, in sand, under a bell-glass, and in heat; sandy loam and fibry peat. Summer temp., 60° to 80°; winter, 50° to 55°.

H. Americana (American). 16. Purple. Vera Cruz. 1733.

HELIO'PHILA. (From *helios*, the sun, and *phileo*, to love; referring to the sunny aspect where they delight to grow. Nat. ord., *Crucifers* [Brassicaceæ]. Linn., 15-Tetradynamia.)

All from the Cape of Good Hope. Annuals, by seed in a warm, dry border, in April, or, better still, in a slight hotbed, under a glass, in March, and transplant in May. The under-shrubs require the greenhouse, or cold, dry pit, to winter them in, and are propagated by cuttings of young shoots in sandy soil, under a hand-glass.

GREENHOUSE EVERGREENS.

- H. cleomeoides* (cleome-like). 1. Yellow. July. 1802.
 — *linearifolia* (narrow-leaved). 1. Blue. June. 1819.
 — *platysliqua* (broad-podded). 1. Purple. July. 1774.
 — *scoparia* (broom-like). 1. Red. June. 1802.

HARDY ANNUALS.

- H. amplexicaulis* (stem-clasping). 3. White, purple. July. 1774.
 — *Araboïdes* (Arabis-like). 3. Brown. June. 1768.
 — *coronopifolia* (buckhorn-leaved). 1½. Violet. July. 1778.
 — *crithmifolia* (samphire-leaved). 3. Violet. July. 1816.
 — *diffusa* (spreading). 3. White. June. 1818.
 — *digitata* (finger-leaved). 1. Brown. June. 1819.
 — *dissecta* (deeply-cut). 1. Blue. June. 1792.
 — *pinmdta* (leafleted). 1. White. June. 1792.
 — *feniculacea* (fennel-like). 1½. Purple. June. 1774.
 — *pectinata* (comb-leaved). 1. White. June. 1819.
 — *pendula* (weeping). 1½. Yellow, white. July. 1792.
 — *pilosca* (shaggy). 1. Blue. July. 1766.
 — *stricta* (erect). 3. Blue. June. 1823.
 — *trifida* (three-cut). 3. Purple. June. 1819.

HELIO'PSIS. (From *helios*, the sun, and *opsis*, like; the appearance of the flowers. Nat. ord., *Compositæ* [Asteraceæ]. Linn., 19-Syngenesia 2-Superflua. Allied to *Zinnia*.)

Hardy herbaceous perennials, with yellow flowers. By seed and division; common soil; treatment similar to that for *Helianthus*.

- H. canensis* (hoary). 2. August. Mexico. 1818.
 — *laevis* (smooth). 6. August. N. Amer. 1714.
 — *sabra* (rough). 5. August. N. Amer. 1824.

HELIO'TROP' IUM. Turnsole. (From

helios, the sun, and *trope*, twining; in reference to the curled or twining of the flower-branch. Nat. ord., *Ehretiads* [*Ehretiaceæ*]. Linn., 3-Triandria 1-Monogynia.)

Hardy annuals, sown in open border, in April; tender annuals and biennials, in hotbed, and transplanted; biennials to be kept on by cuttings; shrubs, by cuttings at any time, but best in spring and autumn: at the first period give a little bottom-heat, at the latter period place them under glass, and shade; rich, light soil.

STOVE ANNUALS AND BIENNIALS.

- H. brevifolium* (short-leaved). 1. White. Nepaul. 1824. Biennial.
— Coromandelinum (Coromandel). $\frac{1}{2}$. White. E. Ind. 1812.
— parviflorum (small-flowered). 1. White. August. W. Ind. 1732. Biennial.

HARDY ANNUALS.

- H. Egyptiacum* (Egyptian). White. June. Egypt. 1842.
— Capense (Cape). $\frac{1}{2}$. White. Cape of Good Hope. 1824.
— commutatum (changed). $\frac{1}{2}$. White. August. South Europe. 1800.
— Europæum (European). $\frac{1}{2}$. White. July. South Europe. 1562.
— oblongifolium (oblong-leaved). $\frac{1}{2}$. White. July. South Europe. 1824.
— obovatum (reversed-egg-leaved). $\frac{1}{2}$. Brown. May. Nepaul. 1825.

GREENHOUSE AND STOVE EVERGREEN

SHRUBS.

- H. corymbosum* (corymbed). 4. Lilac. July. Peru. 1800.
— humile (humble). 1. White. June. W. Ind. 1752. Stove.
— incanum (hoary). 2. White. June. Peru. 1844.
— linifolium (flax-leaved). $\frac{1}{2}$. White. July. Cape of Good Hope. 1815.
— Marocanum (Morocco). 1. White. June. Morocco. 1823.
— undulatum (waved-leaved). $\frac{1}{2}$. Lilac, brown. July. N. Africa. 1820.

GREENHOUSE DECIDUOUS SHRUB.

- H. Peruviaenum* (Peruvian). 2. Lilac. July. Peru. 1757.

HELLEBORUS. Hellebore. (From *helein*, to kill, and *bora*, food; referring to its poisonous quality. Nat. ord., *Crowfoots* [*Ranunculaceæ*]. Linn., 13-Polyandria 6-Polygynia. Allied to *Eranthis*.)

Hardy herbaceous perennials; by seeds, and by division of the plant in spring; common soil, in a shady place.

- H. atro-rubens* (dark red). 1. Purple. March. Hungary. 1820.
— cupreus (copper-coloured-flowered). Copper. January. 1838.
— dumetorum (thicket). $\frac{1}{2}$. Green. March. 1817.
— foetidus (foetid. Bear's-foot). $\frac{1}{2}$. Green. March. England.
— graveolens (strong-scented). Yellow. February. 1838.
— lividus (livid-three-leaved). 1. Purple. March. Corsica. 1710.
— integrifolius (entire-lobed). 1. Purple. February. Corsica. 1710.

- H. niger* (black. Christmas-Rose). 1. Pink. Austria. 1596.
— angustifolius (narrow-leaved). 1. Pink. March. Austria. 1596.
— odoratus (sweet-scented). $\frac{1}{2}$. Green. March. Hungary. 1817.
— Olympticus (Olympian). 2. Green. February. India. 1840.
— orientalis (eastern). 1. Dark. February. India. 1839.
— purpureascens (purplish). $\frac{1}{2}$. Purple, green. March. Hungary. 1817.
— vernalis (spring). $\frac{1}{2}$. White. March. Austria. 1596.

HELLENIA. (Named after *C. N. Hellenius*, professor at Abo. Nat. ord., *Gingerworts* [*Zingiberaceæ*]. Linn., 1-Monandria 1-Monogynia. Allied to *Alpinia*.)

Stove herbaceous perennials, with white flowers; division in spring; rich, sandy loam and a little peat. Summer temp., 60° to 85°; winter, 50° to 55°. Treatment similar to *Hedychium*.

- H. abnormis* (irregular). 10. June. China. 1824.
— cærulea (blue-berried). 4. N. Holland. 1820.
— Chinensis (Chinese). 3. China. 1825.

HELMET FLOWER. *Coryaanthus*.

HELONIAS. (A diminutive of *helos*, a marsh; small marsh-plants. Nat. ord., *Melanths* [*Melanthaceæ*]. Linn., 6-Hexandria 3-Trigynia. Allied to *Veratrum*.)

Hardy herbaceous perennials, from North America. By seeds, and dividing the roots in spring; sandy, fibry loam and peat, and requiring a moist, somewhat shaded situation.

- H. angustifolia* (narrow-leaved). 1. White. May. 1823.
— bullata (boss-garnished). 1. Purple. April. 1758.
— erythrosperma (red-seeded). $\frac{1}{2}$. White. June. 1770.

HEMEROCALLIS. Day Lily. (From *hemero*, a day, and *kallos*, beauty. Nat. ord., *Lilyworts* [*Liliaceæ*]. Linn., 6-Hexandria 1-Monogynia.)

Hardy herbaceous perennials. Division in spring; common garden-soil.

- H. disticha* (two-rowed). 2. Orange. May. China. 1798.
— flava (yellow). 2. Yellow. June. Siberia. 1896.
— fulva (tawny). 4. Tawny. July. Levant. 1596.
— flore pleno (double-flowered). 4. Copper. July.
— variegata (striped-leaved). 4. Copper. July.
— graminea (grassy-leaved). 1. Lilac, yellow. June. Siberia. 1759.
— Sieboldii (Siebold's). Pink. September. Japan. 1833.
— speciosa (showy). Yellow. July.

HEMILANDRA. (From *hemi*, half, and *aner*, a man; in reference to the absence of the two upper stamens, being half their number. Nat. ord., *Labiates* or *Lipworts* [*Lamiaceæ*]. Linn., 14-Didynamia 1-Gymnospermia. Allied to *Prostanthera*.)

Greenhouse evergreen shrubs, from New Holland. Cuttings of half-ripened shoots in sand,

under a bell-glass, in April; loam and peat, lightened with sand and pieces of charcoal. Summer temp., 55° to 75°; winter, 38° to 45°.

H. brevifolia (short-leaved). May. 1840.

— *emarginata* (notch-ended). White, pink. May. 1840.

— *hirsuta* (hairy). May.

— *rupestris* (rock). May. 1837.

HEMICLI'DIA. (From *hemi*, half, and *kleio*, to shut; referring to the appearance of the flowers. Nat. ord., *Proteads* [Proteaceæ]. Linn., 4-*Tetrandria* 1-*Monogynia*. Allied to *Dryandria*.)

Greenhouse evergreen shrub. Cuttings of firm young shoots in sand, under a bell-glass, and when callused at the base, assisted with a mild bottom-heat; a little fibry loam, but chiefly peat, with a few chips of sandstone and charcoal, and well-drained. Winter temp., 35° to 45°.

H. Baxteri (Baxter's). 3. Yellow. June. Lucky Bay. 1824.

HEMIDI'CTYON. (From *hemi*, half, and *diktyon*, a net. Nat. ord., *Polypods* [Polypodiaceæ]. Linn., 24-*Cryptogamia* 1-*Filices*.)

A stove Fern. Division in spring; peat and loam. Summer temp., 60° to 80°; winter, 50° to 55°.

H. marginatum (bordered). Brown. S. Amer.

HEMIGE'NIA. (From *hemi*, half, and *genea*, to beget; referring to the absence of the two upper stamens, being half their number. Nat. ord., *Labiates* [Lamiaceæ]. Linn., 14-*Didynamia* 1-*Gynnospermia*. Allied to *Hemiandra*.)

Greenhouse evergreen shrub. Cuttings of short young shoots in sand, under a bell-glass; peat and loam. Winter temp., 40° to 45°; requires good drainage.

H. purpurea (purple-flowered). Purple. April. N. S. Wales. 1824.

HEMIGONIUM. (From *hemi*, half, and *gonu*, angle. Nat. ord., *Polypods* [Polypodiaceæ]. Linn., 24-*Cryptogamia* 1-*Filices*.)

Herbaceous stove Fern. Divisions in spring; peat and loam. Summer temp., 60° to 80°; winter, 45° to 55°.

H. caducum (naked). Brown, yellow. May. W. Ind.

HEMI'MERIS. (From *hemi*, half, and *meris*, a part; referring to the appearance of the flowers as if in two halves. Nat. ord., *Figworts* [Scrophulariaceæ]. Linn., 2-*Diandria* 1-*Monogynia*. Allied to *Alonsoa*.)

Stove herbaceous perennial. Cuttings of young shoots in sandy soil, and in bottom-heat; sandy loam and a little peat. Summer temp., 60° to 80°; winter, 48° to 55°.

H. montana (mountain). ‡. July. Cape of Good Hope. 1816.

HEMION'TES. (From *hemionos*, a mule; supposed to be barren. Nat. ord., *Poly-*

pods [Polypodiaceæ]. Linn., 24-*Cryptogamia* 1-*Filices*.)

Stove herbaceous perennials. Dividing the roots; sandy loam and peat. Summer temp., 60° to 85°; winter, 45° to 55°.

H. cordata (heart-leaved). Brown, yellow. July. E. Ind.

— *palmeta* (hand-leaved). ‡. July. W. Ind. 1793.

— *pinna'ta* (leafleted). Brown, yellow. July. E. Ind.

HEMITE'LIA. (From *hemi*, half, and *mitella*, a mitre; shape of root-stock. Nat. ord., *Polypods* [Polypodiaceæ]. Linn., 24-*Cryptogamia* 1-*Filices*.)

A stove Fern, from Jamaica, requiring similar treatment to *Hermionites*.

H. horrida (horrid). 20. Brown, yellow. 1843.

— *multiflora* (many-flowered). Brown, yellow. 1824.

HEMLOCK. *Conium*.

HEMLOCK SPRUCE. *Pinus Canadensis*.

HEMP AGRIMONY. *Eupatorium cannabinum*.

HEN-AND-CHICKENS. See **DAISY**.

HENBANE. *Hyoscyamus*.

HE'NFREYA. (Named after *Arthur Henfrey, Esq.*, a distinguished botanist. Nat. ord., *Acanthads* [Acanthaceæ]. Linn., 2-*Diandria* 1-*Monogynia*. Allied to *Dicliptera*.)

Stove evergreen twiner. Cuttings of small side-shoots in sand, under a bell-glass, in a brisk bottom-heat; turfy loam and fibry peat; keep a high, moist temperature after shifting. Summer temp., 60° to 90°; winter, 55° to 60°.

H. scandens (climbing). White. May. Sierra Leone. 1845.

HENNA-PLANT. *Lawsonia inermis*.

HEPA'TICA. (From *hepaticos*, relating to the liver; referring to the lobed leaves. Nat. ord., *Crowfoots* [Ranunculaceæ]. Linn., 13-*Polyandria* 6-*Polygynia*.)

Hardy herbaceous perennials; seeds and division of the plant, or roots, in spring; sandy loam, with the addition of a little peat or leaf-mould.

H. acutiloba (acute-lobed). ‡. Blue. March. N. Amer. 1818.

— *Americana* (common. American). ‡. Blue. March. N. Amer. 1800.

— *alba* (white-flowered). ‡. White. March. N. Amer. 1835.

— *rubra* (red-flowered). ‡. Red. March. N. Amer. 1835.

— *angulosa* (angled). ‡. Blue. March. N. Amer.

— *triloba* (common-three-lobed). ‡. Pink. April. England.

Of *Americana* and *triloba* there are many varieties.

HERACLE'UM. Cow Parsnip. (From *heracles*, a plant consecrated to *Heracles*. Nat. ord., *Umbellifers* [Apiaceæ]. Linn., 5-*Pentandria* 2-*Digynia*.)

Strong, coarse plants, adapted for rough ground,

banks of lakes, rivers, and waterfalls. *H. giganteum* is the best for these purposes. All the species are hardy biennials or herbaceous perennials, and white flowered.

HERBACEOUS PLANTS are those perennials which lose their stems annually, whilst the roots continue alive in the earth.

HERBARY was a department of the garden formerly much more cultivated than at present, when the more potent medicinal plants of hotter climates are so easily procurable. The following is a list of the tenants of the herbary, the appropriate cultivation of which will be found under their particular titles:—Angelica, Balm, Basil, Blessed Thistle, Borage, Burnet, Caraway, Chamomile, Chervil, Coriander, Dill, Hyssop, Lavender, Liquorice, Marigold, Marjoram, Mint, Pennyroyal, Peppermint, Purslane, Rue, Sage, Savory, Scurvy Grass, Tansey, Tarragon, Thyme, Wormwood.

HERBERTIA. (Named after *Dr. Herbert*, Dean of Manchester, a distinguished investigator of bulbous plants. Nat. ord., *Irids* [Iridaceæ]. Linn., 16-Monadelph. 1-Triandria. Allied to *Cypella*.)

Pretty little half-hardy bulbs. Seeds and offsets in spring; sandy loam and a little peat; should be kept in a cold pit in winter, or protected in a dry border.

H. cærulea (sky-blue). Blue. April. Texas. 1842.

— *Drummondiana* (Drummond's). Violet. April. Texas. 1842.

— *pulchella* (neat). $\frac{3}{4}$. Blue, purple. July. Chili. 1827.

— *pusilla* (small). Yellow. June. Brazil. 1830.

HERB-BENNET. *Ge'um*.

HERB-GRACE. See *RUE*.

HERB PARIS. *Pa'ris*.

HERB ROBERT. *Gera'nium Robertia'-num*.

HERCULES' CLUB. *Zantho'xylum cla'va He'rculis*.

HERITIE'RA. Looking-glass plant. (Named after *L'Heritier*, a French botanist. Nat. ord., *Sterculiads* [Sterculiaceæ]. Linn., 21-Monæcia 10-Decandria. Allied to *Sterculia*.)

Stove evergreen trees; cuttings of ripe young shoots in sand, under a glass, and in brisk bottom-heat; sandy, rich loam and a little peat; Summer temp., 60° to 85°; winter, 50° to 60°.

H. litorea (shore). 20. Red. E. Ind. 1730.

— *minor* (smaller). 12. Mauritius. 1842.

HERMAN'NIA. (Named after *Paul Hermann*, a botanist. Nat. ord., *Byttneriads* [Byttneriaceæ]. Linn., 16-Monadelphia 2-Pentandria. Allied to *Mahernia*.)

Greenhouse evergreen shrubs, from the Cape of Good Hope, with yellow flowers, except where

otherwise mentioned. Cuttings of young shoots in sandy soil, in spring, under a glass; sandy loam and a little fibry peat. Winter temp., 40° to 45°.

H. albifolia (alder-leaved). 7. March. 1728.

— *althæifolia* (mallow-leaved). 2½. April. 1728.

— *argentea* (silvery). 2. Orange. May. 1820.

— *coronopifolia* (buckhorn-leaved). 2. June. 1823.

— *cuneifolia* (wedge-leaved). 2. August. 1791.

— *decumbens* (lying-down). 1. May. 1821.

— *diosmaifolia* (diosma-leaved). April. 1794.

— *flammea* (flame-flowered). 3. Orange. December. 1794.

— *fragrans* (fragrant). 2. 1822.

— *glandulosa* (glandular). 2. June. 1822.

— *grandiflora* (large-flowered). Red. 1791.

— *hispida* (slightly-bristled). March. 1824.

— *holosericea* (velvet-leaved). 2. June. 1792.

— *hyssopifolia* (hyssop-leaved). 7. Straw. May. 1725.

— *incisa* (cut-leaved). 2. June. 1816.

— *inflata* (swollen). 3. Tawny. September. S. Amer. 1829.

— *involuta* (involved). 2. May. 1794.

— *lavandulifolia* (lavender-leaved). 1½. June. 1732.

— *micans* (glittering). 2. 1790.

— *multiflora* (many-flowered). 3. April. 1791.

— *odora* (sweet-scented). 3. May. 1780.

— *plicata* (plaited-leaved). 3. November. 1774.

— *procumbens* (lying-down). 1½. May. 1792.

— *pulverulenta* (powdered). 2. June. 1820.

— *scabra* (rough-leaved). 3. April. 1789.

— *tenuifolia* (slender-leaved). 2. June.

— *trifoliata* (three-leaved). 2. 1752.

— *trifurcata* (three-forked). 3. Purple. May. 1789.

— *triphylia* (three-leaved). 2. June. 1819.

HERMI'NIUM. (Derivation not explained. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-Gynandria 1-Monandria. Allied to *Gymnadenia*.)

Terrestrial orchids, inhabiting dry, chalky banks. Divisions of the roots; chalky loam and fibry peat; some hardy enough for a shady border, and others requiring the greenhouse.

H. alpinum (alpine). White. May. Switzerland. 1824.

— *cordatum* (heart-leaved). $\frac{3}{4}$. Yellowish-green. March. N. W. Africa. 1830.

— *congestum* (crowded-flowered). Green. November. Madeira.

— *monorchis* (one-bulbed). Green. June. England.

HERNA'NDIA. Jack-in-a-box. (Named after *F. Hernandez, M.D.*, a Spanish botanist. Nat. ord., *Daphnads* [Thymelaceæ]. Linn., 21-Monæcia 3-Triandria. Allied to *Inocarpus*.)

Stove evergreen trees. Cuttings of ripe shoots in sand, under a bell-glass, and in brisk bottom-heat; peat and loam. Summer temp., 60° to 85°; winter, 50° to 60°.

H. Guianensis (Guiana). 50. Guiana. 1820.

— *ovigera* (egg-bearing). 50. E. Ind.

— *sonora* (sounding). 50. E. Ind. 1693.

HERON'S BILL. *Ero'dium*.

HERPE'STES. (From *herpestes*, a creeping thing; in reference to the creeping

stems. Nat. ord., *Figworts* [*Scrophulariaceæ*]. Linn., 14-*Didynamia* 2-*Angiospermia*. Allied to *Gratiola*.)

Aquatic perennials. Seeds and divisions; rich, loamy soil. *H. cuneifolia* is hardy; the other two require pans or tubs of water in a stove.

H. cuneifolia (wedge-leaved). $\frac{1}{2}$. Blue. August. N. Amer. 1812.

— *Monnieria* (Monnier's). $\frac{1}{2}$. Light blue. August. S. Amer. 1772.

— *stricta* (erect). 1. Blue. August. 1824.

HESPERANTHA. Evening Flower. (From *hesperos*, the evening, and *anthos*, a flower, Nat. ord., *Irids* [*Iridaceæ*]. Linn., 3-*Triandria* 1-*Monogynia*. Allied to *Ixia*.)

Small bulbs, from the Cape of Good Hope. Offsets; sandy loam and peat; requiring the protection of a cold pit in winter.

H. angusta (narrow-leaved). $\frac{1}{2}$. White. May. 1825.

— *cinnamomea* (cinnamon). $\frac{1}{2}$. Violet. April. 1787.

— *falcata* (sickle-leaved). $\frac{1}{2}$. Violet. May. 1787.

— *radiata* (radiated). $\frac{1}{2}$. Violet. May. 1794.

HE'SPERIS. Rocket. (From *hesperos*, the evening star; rockets being sweeter towards the evening. Nat. ord., *Crucifers* [*Brassicaceæ*]. Linn., 15-*Tetradynamia*.)

Annuals and biennials sow in open border, in March and April; perennials, division of the root, and giving them fresh soil; the best time for this is after they have finished flowering and fresh growth has commenced; light, rich soil.

HARDY ANNUALS.

H. pulchella (neat). 1. Red. July. Levant. 1827.

— *pygmaea* (dwarf). Purple. June. Syria. 1828.

— *ramosissima* (branchiest). $\frac{1}{2}$. Red. July. Algiers. 1819.

HARDY BIENNIALS.

H. elata (tall). 4. Pink. June. Europe. 1824.

— *fragrans* (fragrant). 1. Purple. May. Siberia. 1821.

— *grandiflora* (large-flowered). 4. White, purple. July. 1820.

— *heterophylla* (various-leaved). 4. Red. May. Italy. 1823.

— *lacinata* (fringed). $1\frac{1}{2}$. Purple. May. South France. 1816.

— *runcinata* (irregular-lobed). $1\frac{1}{2}$. White, purple. June. Hungary. 1804.

— *bituminoza* (clammy). $1\frac{1}{2}$. White, purple. June.

— *trifida* (sad). 1. Purple. May. Austria. 1829.

HARDY HERBACEOUS PERENNIALS.

H. aopria (exposed). $\frac{1}{2}$. Purple. May. Siberia. 1822.

— *excolia* (lofty). 3. White. May. 1828.

— *matronalis* (matronly). 4. Purple. June. Europe. 1597.

— *albiflora* (white-flowered). 4. White. June. Europe. 1759.

— *albo-plena* (double-white-flowered). 2. White. June. Europe. 1597.

— *foliiflora* (leaf-flowered). 2. Green. June. Europe. 1897.

— *hortensis* (garden). Purple. June. Europe. 1759.

— *purpureo-plena* (double-purple). Red. June. Europe. 1597.

H. matronalis *Sibirica* (Siberian). 3. Purple. June. Siberia. 1800.

— *sylvestris* (wood). Pink. June. Britain.

— *variegata* (variegated-double-flowered). 2. White, red. June. Europe. 1597.

— *repanda* (wavy-edged). 2. Purple. June. Spain. 1821.

— *speciosa* (showy). $\frac{1}{2}$. Rose, purple. April. Siberia. 1829.

HESPEROSCOEDUM. (Literally, the onion of the west; from *hesperos*, the evening, and *scordon*, garlic. Nat. ord., *Lilyworts* [*Liliaceæ*]. Linn., 6-*Hexandria* 1-*Monogynia*. Allied to *Allium*.)

Seeds or offsets in spring; sandy loam; require a little protection in winter.

H. hyacinthinum (hyacinth-like). 1. Blue. July. 1826.

— *lacteum* (milk-white). $1\frac{1}{2}$. White. July. California. 1833.

HE'SSEA. (A genus of little Cape bulbs, named after *M. Hess*, a missionary; found in all our books, but the living plants remain still to be introduced.)

HETERANTHERA. (From *heteros*, variable, and *anther*, another. Nat. ord., *Pontederads* [*Pontederaceæ*]. Linn., 3-*Triandria* 1-*Monogynia*.)

Water perennials, allied to *Lilies*. *Limoza* will thrive in a pond or stream; the others require tubs in the greenhouse and stove; division; rich loam.

H. acuta (acute). White. June. Virginia. 1812.

— *limosa* (hog). Blue. July. N. Amer. 1822.

— *reniformis* (kidney-leaved). Blue. July. S. Amer. 1824.

HETEROCHÆTA. (From *heteros*, variable, and *chaite*, a bristle; referring to the flower-envelopes. Nat. ord., *Composites* [*Asteraceæ*]. Linn., 19-*Syngenesia* 2-*Superflua*. Allied to *Erigeron*.)

Hardy herbaceous perennial. Division of the plant in spring; deep, sandy loam.

H. pubescens (downy). White. July. Mexico. 1827.

HETEROMORPHA. (From *heteros*, variable, and *morpha*, form; referring to the leaves. Nat. ord., *Umbellifers* [*Apiaceæ*]. Linn., 5-*Pentandria* 2-*Digynia*.)

Greenhouse evergreen shrub. Cuttings of young shoots under a bell-glass, in sand; sandy loam. Winter temp., 35° to 45°.

H. arborescens (tree-like). 2. Yellow. August. Cape of Good Hope. 1810.

HETERONOMA. (From *heteros*, variable, and *nome*, distribution; referring to the leaves. Nat. ord., *Melastomads* [*Melastomaceæ*]. Linn., 8-*Octandria* 1-*Monogynia*. Allied to *Rhexia*.)

Stove evergreen shrubs, from Mexico. Cuttings of young shoots in spring, in sandy peat, under a bell-glass, and then placed in bottom-heat; sandy peat, and pieces of charcoal and sandstone, with

good drainage. Summer temp., 60° to 80°; winter, 48° to 55°.

H. diversifolium (various-leaved). 2. Red. June. 1830.

— *subtripinervium* (under-three-nerved). White. June. 1824.

HETEROPTERYS. (From *heteros*, various, and *pteron*, a wing; referring to the wings of the seed-vessels being of different forms. Nat. ord., *Malpighiads* [*Malpighiaceæ*]. Linn., 10-*Decandria* 3-*Trigynia*. Allied to *Banisteria*.)

Stove climbers, except *nitida*, which is a shrub. Cuttings of firm young shoots in silver sand, over sandy peat, and plunged in bottom-heat, in April; sandy peat and loam, with pieces of charcoal, and thorough drainage. Summer temp., 60° to 85°; winter, 50° to 55°.

H. cœrulea (blue). 10. Blue. W. Ind. 1823.
— *chrysophylla* (golden-leaved). Orange. Brazil. 1793.

— *floribunda* (bundle-flowered). Blue. Mexico. 1824.

— *nitida* (glossy). 10. Yellow. Brazil. 1809.
— *undulata* (wavy-leaved). July. Buenos Ayres. 1838.

HETEROSPERMUM. (From *heteros*, variable, and *sperma*, seeds. Nat. ord., *Compositæ* [*Asteraceæ*]. Linn., 19-*Syngenesia* 2-*Superflua*.)

Hardy annual. Sow in the open border in April, or in a slight hotbed in March; seedlings to be transplanted.

H. pinna-tum (leafleted). 2. Yellow. August. New Spain. 1799.

HETEROTHECA. (From *heteros*, various, and *theca*, a covering; referring to the flower-envelopes. Nat. ord., *Compositæ* [*Asteraceæ*]. Linn., 19-*Syngenesia* 2-*Superflua*.)

Hardy herbaceous perennial. Seeds and divisions of the plant in spring; common garden-soil.

H. scabra (rough). Yellow. August. N. Amer.

HETEROTRICHUM. (From *heteros*, various, and *trich*, hair; referring to the disposition of the hairs on the leaves, &c. Nat. ord., *Melastomads* [*Melastomaceæ*]. Linn., 10-*Decandria* 1-*Monogynia*. Allied to *Miconia*.)

Stove evergreen shrubs. Cuttings of young shoots in sandy peat, under a bell-glass, and in bottom-heat, in spring; sandy peat and fibry loam. Summer temp., 60° to 80°; winter, 48° to 55°.

H. macrodon (long-toothed). 7. White. September. S. Amer. 1848.

— *neveum* (snowy). White. May. St. Domingo. 1820.

— *patens* (spreading). Blush. May. St. Domingo. 1825.

HEUCHERA. (Named after *Professor Heucher*, a German botanist. Nat. ord., *Saxifragæ* [*Saxifragaceæ*]. Linn., 5-*Pentandria* 2-*Digynia*.)

Hardy herbaceous perennials; divisions of the plant any time in spring; common garden-soil.

H. America-na (American). 1. Purple. May. N. Amer. 1656.

— *cylindracea* (cylindric-panicled). 2. Green. May. N. Amer. 1830.

— *glabra* (smooth). 1. Pink. May. N. Amer. 1827.

— *hispida* (bristly). 3. Purple. May. Virginia. 1826.

— *Menziesii* (Menzies'). White. May. N. Amer. 1812.

— *pubescens* (downy). 1. Pink, violet. June. N. Amer. 1812.

— *Richardsonii* (Richardson's). 1. Green. N. Amer. 1827.

— *villosa* (shaggy). 2. Violet. May. Canada. 1812.

HEWARDIA. (Named after *Mr. Heward*. Nat. ord., *Polypods* [*Polypodiaceæ*]. Linn., 24-*Cryptogamia* 1-*Filices*.)

A stove Fern; divisions in spring; peat and sandy loam. Summer temp., 60° to 80°; winter, 48° to 55°.

H. adiantoides (maiden-hair-like). Brown. June. Guiana.

HEXACENTRIS. (From *hex*, six, and *centron*, a spur; alluding to two of its stamens having one spur each, and two of them two spurs each. Nat. ord., *Acanthads* [*Acanthaceæ*]. Linn., 14-*Didynamia* 2-*Angiospermia*. Allied to *Thunbergia*.)

Stove climbing evergreen shrub, and one of the best. Cuttings of side-shoots under glass. Loam, peat, sand, and leaf-mould in equal parts. Young shoots pruned back after flowering. Temperature not less than 55° in winter. In summer it can be scarcely too hot. A damp air suits it.

H. Mysorensis (Mysore). 8. Yellow. June. Mysore. 1854.

There is a variety with a crimson border to the limb of the corolla.

HEXNEA. (Named after *Dr. Heyne*, a German botanist. Nat. ord., *Meliads* [*Meliaceæ*]. Linn., 10-*Decandria* 1-*Monogynia*. Allied to *Trichilia*.)

Stove evergreen, white-flowered trees. Cuttings of well-ripened young shoots in sand, under a bell-glass, in bottom-heat; sandy, rich loam and a little peat. Summer temp., 60° to 85°; winter, 55°.

H. quinquejuga (five-paired). 20. Java. 1816.

— *trijuga* (three-paired). 20. September. Nepal. 1812.

HIBBERTIA. (Named by *G. Hibbert*, a distinguished promoter of botany. Nat. ord., *Dilleniads* [*Dilleniaceæ*]. Linn., 13-*Polyandria* 3-*Trigynia*. Allied to *Candollea*.)

Greenhouse evergreen shrubs, with yellow flowers, from New Holland, except where otherwise mentioned. Cuttings of half-ripened shoots in sandy soil, under a bell-glass, in spring; sandy loam and a little peat. Winter temp., 40° to 45°. *Volubilis* is an elegant twiner, and *grossularifolia* makes either a creeper or a trailer; it has a fine effect suspended from a basket; does beautifully for hanging down the sides of a rock-work in summer.

- H. cistifolia* (cistus-leaved). 1. June. 1826.
 — *Cunninghami* (Cunningham's). 2. July. 1832. Twiner.
 — *denta'ta* (toothed). 6. 1814. Twiner.
 — *flexuo'sa* (zigzag). 2. May. 1823.
 — *grossulariaefolia* (gooseberry-leaved). 6. May. 1816. Trailer.
 — *linea'ris* (narrow-leaved). 6. June. 1821.
 — *obtusifolia* (blunt-leaved). 2. Van Diemen's Land. 1824.
 — *peduncula'ta* (long-leaf-stalked). 2. June. 1821.
 — *perfolia'ta* (leaf-pierced). 3. May. 1842.
 — *sal'igna* (willow-leaved). 3. July. 1823.
 — *flexuo'sa* (zigzag). 2. May. 1823.
 — *virga'ta* (twiggy). 3. July. 1822.
 — *volutibilis* (twining). 8. June. Cape of Good Hope. 1790. Twiner.

HIBISCUS. (Virgil's name for the Marsh Mallow. Nat. ord., *Mallowworts* [Malvaceæ]. Linn., 16-Monadelphia 8-Polyandria.)

Hardy annuals sow in open border, in the beginning of April; tender annuals sow in hothed-seedlings to have out-door or greenhouse treatment; hardy herbaceous require dividing in spring, and a moist situation to grow in; hardy shrubs require an open situation fully exposed to the sun, by seeds, and double ones by layers, by cuttings of ripe shoots under a hand-lift, in autumn, and kept on all the winter, and also by grafting. Greenhouse and stove species are propagated by young shoots in sandy soil, under a bell-glass, the stove kinds also requiring bottom-heat, and the greenhouse kinds liking a little, too, after they have stood a week in the cutting-pots; peat and loam; usual greenhouse and stove temperatures.

HARDY ANNUALS.

- H. Africa'na* (African). 2. White. June. Africa. 1826.
 — *Hugelii* (Baron Hugel's). May. Swan River. 1841.
 — *tricolor* (three-coloured. *Bladder-ke'tmia*). 2. Yellow, brown. July. Italy. 1596.

STOVE ANNUALS.

- H. digita'tus* (finger-leaved). 2. White, red. August. Brazil. 1816.
 — *Keria'nus* (Ker's). 2. White, red. August. Brazil. 1816.
 — *longiflorus* (long-flowered). Pale yellow. August. E. Ind. 1817.
 — *radia'tus* (rayed). 2. Yellow. July. E. Ind. 1790.
 — *tetraphyllus* (four-leaved). 1½. Yellow. July. Bengal. 1818.
 — *vitifolius* (vine-leaved). 2. Yellow. August. E. Ind. 1690.

HARDY HERBACEOUS PERENNIALS.

- H. grandiflorus* (large-flowered). 3. Flame. July. Georgia. 1816. Half-hardy.
 — *inca'nus* (hoary). 3. Yellow. September. Carolina. 1806.
 — *milita'ris* (military). 3. Purple. August. N. Amer. 1804.
 — *moscheutos* (mallow-rose). 4. White, pink. August. N. Amer.
 — *palu'stris* (marsh). 3. Pink. August. N. Amer. 1759.
 — *pentacar'pus* (five-fruited). 3. Lilac, red. August. Venice. 1752.
 — *roseus* (rose-coloured). 4. Pink. August. France. 1827.
 — *sca'ber* (rough). 2. Yellow. August. Carolina. 1810.

- H. speciosus* (showy). 2. Scarlet. July. N. Amer. 1804.
 — *Syri'acus* (Syrian). 8. Purple. August. Syria. 1596. Deciduous shrub.
 — *al'bus* (white-flowered). 8. White.
 — *al'bus-plenus* (double-white). 8. White. August.
 — *margina'tus* (border-leaved). 8. Purple, white. August. Syria.
 — *purpureus* (purple-flowered). 8. Purple. August.
 — *purpureo-plenus* (double-purple). 8. Purple. August.
 — *ruber* (red-flowered). 8. Red. August.
 — *variegatus* (variegated-flowered). 8. Striped. August.
 — *Virginicus* (Virginian). 2. Red. August. Virginia. 1798.
 — *Wraya* (Mrs. Wray's). 10. Purple. October. Swan River. 1839. Deciduous shrub.

GREENHOUSE EVERGREEN SHRUBS.

- H. gossypinus* (cotton-like). 4. Yellow. July. Cape of Good Hope. 1818.
 — *grossularia* (gooseberry-leaved). 4. Blush. June. Swan River.
 — *heterophyllus* (various-leaved). 6. White, red. August. N. S. Wales. 1803.
 — *multifidus* (many-parted-leaved). 2. Azure. September. N. Holland. 1837. Deciduous.
 — *Richardsoni* (Richardson's). 3. Yellow. August. N. S. Wales.

STOVE EVERGREEN SHRUBS, &c.

- H. abelmoschus* (musk-akro). 3. Yellow. August. India. 1640.
 — *Æthiop'icus* (Ethiopian). 15. Purple. August. Cape of Good Hope. 1774.
 — *bifurcatus* (two-forked). 2. Purple. June. Brazil. 1825.
 — *Borbo'nicus* (Bourbon). 10. Yellow. July. Bourbon. 1820.
 — *Cameroni* (Cameron's). 1. Rosy. July. Madagascar. 1838.
 — *fulgens* (brilliant). Red. August. Madagascar. 1843.
 — *cancellatus* (latticed). 3. Yellow. July. E. Ind. 1817.
 — *collinus* (hill-inhabiting). 4. Yellow, brown. January. 1836.
 — *crinitus* (long-haired). 3. Yellow, red. September. Prome. 1828. Herbaceous perennial.
 — *diversifolius* (various-leaved). 6. Yellow. June. E. Ind. 1798.
 — *ferox* (fierce-stinging). 5. Yellow. May. New Grenada. 1844.
 — *ferrugineus* (rusty). 15. Scarlet. Madagascar. 1824.
 — *ficulneus* (fig-like). 4. Yellow, purple. June. Ceylon. 1732.
 — *furcatus* (forked-calysed). 2. Yellow. August. E. Ind. 1816. Herbaceous perennial.
 — *Jerroldianus* (Mr. Jerrold's). 6. Crimson. July. Brazil. 1843. Herbaceous perennial.
 — *lampas* (lamp). 10. Pink. E. Ind. 1806.
 — *lilacinus* (lilac-flowered). 6. Lilac. N. Holland. 1836.
 — *liliflorus* (lily-flowered). 10. Scarlet. July. Mauritius. 1828.
 — *Lindleyi* (Lindley's). 3. Purple. December. India. 1828.
 — *Macleanianus* (MacLeay's). Yellow. August. W. Ind. 1827.
 — *Manihot* (Manihot). 3. Yellow. July. E. Ind. 1712. Herbaceous perennial.

- H. muta/bilis* (changeable). 15. White. November. E. Ind. 1690.
 — *peduncula/tus* (long-leaf-stalked). 2. Red. August. Cape of Good Hope. 1812.
 — *pentaspe/rmus* (five-seeded). 3. Yellow. July. Jamaica. 1825.
 — *phœni/ceus* (purple-flowered). 8. Purple. July. E. Ind. 1796.
 — *pulche/rus* (beautiful). 3. July. E. Ind. 1820.
 — *rhombifo/lius* (diamond-leaved). 4. Purple. July. E. Ind. 1823.
 — *ro'sa-Malaba/rica* (Malabar-rose). 2. Scarlet. August. E. Ind.
 — *ro'sa-Sine/nsis* (Chinese-rose). 10. Red. July. E. Ind. 1731.
 — — *car/neu-ple'na* (double-flesh). 10. Flesh. July. E. Ind. 1731.
 — — *fla'va-ple'na* (double-yellowish). 10. Yellow. July. E. Ind.
 — — *lu'tea* (double-yellow). 10. Yellow. July. E. Ind. 1823.
 — — *ru'bra-ple'na* (double-red). 10. Red. July. E. Ind.
 — — *variega'ta-ple'na* (double-variegated). 10. Striped. July. E. Ind.
 — *sple'ndens* (shining). 10. Rose. May. N. Holland. 1828.
 — *Telfai'ria* (Mrs. Telfair's). 2. Rose. July. Mauritius. 1825.
 — *tri/lobus* (three-lobed). 2. Yellow. July. W. Ind. 1818.
 — *tubulo/sus* (tubular). 2. Yellow. August. E. Ind. 1796.
 — *veluti'nus* (velvet). 6. White. July. Timor. 1818.

HICKORY. *Ca'rya*.

HIDE-BOUND. See BARK-BOUND.

HIERA/CIUM. Hawkweed. (A name from Pliny for eye-salve; referring to the ancient employment of the juice. Nat. ord., *Compositæ* [Asteracæ]. Linn., 19-Syngenesia 1-Æqualis.)

Hardy herbaceous perennials, with one exception, and all yellow-flowered, except where otherwise mentioned. The dwarf ones fitted for the front of borders, rock-works, and alpine grounds. Seeds and divisions of the plant in spring; light, rich loam. *Frutico'sum* is a greenhouse shrub; cuttings will strike in sandy soil, either under a bell-glass or a hand-light, during the summer; sandy loam suits it, with a little peat. Winter temp., 35° to 40°.

- H. alpe'stre* (alpine). $\frac{1}{2}$. July. Switzerland. 1822.
 — *alpi'nus* (mountain). $\frac{1}{2}$. July. Britain.
 — *amplexica'u'le* (stem-clasping). $\frac{1}{2}$. July. Pyrenees. 1739.
 — *pulmonari'o'des* (lungwort-like). $\frac{1}{2}$. July. Switzerland. 1819.
 — *anchusafo'lium* (bugloss-leaved). 1. July. Italy. 1816.
 — *angustifo'lium* (narrow-leaved). $\frac{1}{2}$. May. Switzerland. 1822.
 — *auranti/acum* (orange). $\frac{1}{2}$. Orange. June. Scotland.
 — — *fla'vum* (yellow). $\frac{1}{2}$. July. Switzerland. 1819.
 — *auri'cula* (umbel-eared). $\frac{1}{2}$. July. England.
 — *bi'fidum* (twice-cut). $\frac{1}{2}$. June. Hungary.
 — *bracteola'tum* (bracted). $\frac{1}{2}$. August. Europe. 1823.
 — *calca'reum* (chalky). $\frac{1}{2}$. July. Europe. 1816.
 — *Canada'nse* (Canadian). 2. July. Canada. 1800.

- H. cerintho'i'des* (honeywort-like). $\frac{1}{2}$. August. Scotland.
 — *cilia'tum* (hair-fringed). 2. July. Crete. 1824.
 — *collu'nsum* (hill). $\frac{2}{3}$. July. Switzerland. 1819.
 — *corymbo'sum* (corymbed). 2. July. 1817.
 — *crassifo'lium* (thick-leaved). $\frac{1}{2}$. July. Hungary. 1820.
 — *cro'ceum* (saffron). 1. June. Siberia. 1818.
 — *cydoni'efo'lium* (quince-leaved). 2. July. France. 1816.
 — *cymo'sum* (cymed). 1. May. Europe. 1730.
 — *denticula'tum* (small-toothed). 1. July. Scotland.
 — *echio'i'des* (viper's bugloss-like). $\frac{3}{4}$. July. Hungary. 1802.
 — *elonga'tum* (lengthened). 1. July. Switzerland. 1819.
 — *criopho'rum* (wool-bearing). 1. August. South Europe. 1817.
 — *eripho'lium* (woolly-leaved). $\frac{1}{2}$. June.
 — *fascicula'tum* (bundled). 5. July. Canada.
 — *flagella're* (twiggy). 1. May. 1816.
 — *Florenti'nium* (Florentine). 2. July. Germany. 1791.
 — *folio'sum* (leafy). 2. July. Hungary. 1805.
 — *frutico'sum* (shrubby). 2. July. Madeira. 1785. Greenhouse shrub.
 — *glabra'tum* (smooth). $\frac{1}{2}$. July. Switzerland. 1819.
 — — *tubulo'sum* (tubulous). $\frac{1}{2}$. July. Switzerland. 1819.
 — *Gmel'i'ni* (Gmelin's). $\frac{1}{2}$. June. Siberia. 1798.
 — *Gochna'ti* (Gochnat's). 1. June. Switzerland. 1819.
 — *Grono'vii* (Gronovius's). 1. June. N. Amer. 1798.
 — *Haller'i* (Haller's). $\frac{1}{2}$. July. Britain.
 — *heterophyllum* (various-leaved). 2. August. Woods.
 — *Hoppea'num* (Hoppe's). $\frac{1}{2}$. June. Switzerland. 1819.
 — *hu'mile* (humble). $\frac{1}{2}$. July. Germany. 1804.
 — — *brachia'tum* (brachiate). $\frac{1}{2}$. June. Switzerland. 1819.
 — *incan'um* (hoary). 2. July. Caucasus. 1817.
 — *incarna'tum* (flesh-coloured). $\frac{1}{2}$. Pink. June. Carniola. 1815.
 — *inci'sum* (cut-leaved). $\frac{1}{2}$. July. Switzerland. 1819.
 — *inulo'i'des* (inula-like). 4. August. Scotland.
 — *Kal'mii* (Kalm's). $\frac{1}{2}$. August. Pennsylvania. 1794.
 — *læviga'tum* (smooth). 2. August. 1804.
 — *Lawso'ni* (Lawson's). $\frac{1}{2}$. June. Britain.
 — *longifo'lium* (long-leaved). $\frac{1}{2}$. July. 1821.
 — *macula'tum* (spotted-leaved). $\frac{1}{2}$. August. Britain.
 — *mo'lle* (soft-leaved). $\frac{1}{2}$. August. Scotland.
 — *ova'tum* (egg-leaved). $\frac{1}{2}$. July. Switzerland. 1819.
 — *palle'scens* (pale). 1. July. Hungary. 1818.
 — *panicula'tum* (panicled). $\frac{1}{2}$. June. Canada. 1800.
 — *pi'ctum* (painted). $\frac{1}{2}$. July. Switzerland. 1819.
 — *pilose'phalum* (hairy-headed). 1. July. 1823.
 — *pilose'li'fornie* (mouse-ear-like). $\frac{1}{2}$. June. Switzerland. 1819.
 — *porri'fo'lium* (leek-leaved). 1. July. Austria. 1840.
 — *præme'ssum* (bitten-leaved). 1. June. Switzerland. 1818.
 — *prenanthe'i'des* (prenanthes-like). 2. July. France. 1819.
 — *prunelle'fo'lium* (self-heal-leaved). $\frac{1}{2}$. July. Switzerland. 1820.

H. pulmonarioides (lungwort-like). 1. July. France. 1819.

— *pulmonarium* (lungwort). 1½. July. Scotland.

— *pustillum* (small). ¾. July. Labrador. 1800.

— *racemosum* (racemed). 2. July. Hungary. 1816.

— *ramosum* (branchy). 2. August. Hungary. 1805.

— *repens* (creeping). 1½. July. Switzerland. 1819.

— *rigidum* (stiff). 2. June. Britain.

— *angustifolium* (narrow-leaved). 2. June. Britain.

— *pictum* (painted). 2. June. Britain.

— *rotundatum* (round-leaved). 3. July. Hungary. 1817.

— *rupes* (rock). ¾. June. Switzerland. 1820.

— *saxatile* (rock). 1. July. Austria. 1801.

— *Schmidtii* (Schmidt's). 1½. June.

— *Schraderi* (Schrader's). 1. July. Switzerland. 1819.

— *speciosissimum* (showiest). 3½. August. South Europe. 1821.

— *speciosum* (showy). 1½. June. 1818.

— *staticifolium* (thrift-leaved). 1½. June. Europe. 1804.

— *Sternbergii* (Sternberg's). ¾. July. Switzerland. 1819.

— *stoloniferum* (runner-growing). 1. May. Switzerland. 1820.

— *succisefolium* (lopped-leaved). 1. June. Switzerland. 1819.

— *syloaticum* (wood). 1½. August. Britain.

— *tricocephalum* (hairy-headed). 1. July. 1823.

— *umbellatum* (umbelled). 3. August. Britain.

— *undulatum* (waved). 1½. July. Spain. 1778.

— *venosum* (veiny). ¾. July. N. Amer. 1790.

— *verbascifolium* (mullein-leaved). 1. May. South Europe. 1732.

— *verruculatum* (warted). 1. July. 1821.

— *villosum* (shaggy). 1. July. Scotland.

— *virgatum* (twiggy). 2. July. N. Amer. 1816.

HIGGINIA. (Named after *Don O'Higgins*, a Spanish-American officer. Nat. ord., *Cinchonads* [*Cinchonaceæ*]. Linn., 6-*Hexandria* 1-*Monogynia*. Allied to *Hernilia*.)

A greenhouse evergreen shrub. Cuttings of half-ripened shoots in sand, under a bell-glass, in spring; peat and loam. Winter temp., 35° to 45°; will thrive out of doors in summer.

H. Mexicana (Mexican). Yellow. June. Mexico. 1840.

HIPLIA. (Named after *Sir John Hill*, a botanical author. Nat. ord., *Cinchonads* [*Cinchonaceæ*]. Linn., 6-*Hexandria* 1-*Monogynia*. Allied to *Cinchona*.)

Stove evergreens, with white flowers. Cuttings in sand, under a glass, in bottom-heat; sandy loam and peat. Summer temp., 60° to 85°; winter, 48° to 55°.

H. longiflora (long-flowered). 1½. March. W. Ind. 1789.

— *tetrandra* (four-stamened). 1½. June. Jamaica. 1798.

HINDSIA. (Named after *R. B. Hinds*, a promoter of botany. Nat. ord., *Cinchonads* [*Cinchonaceæ*]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Rondeletia*.)

Greenhouse evergreen shrubs, from Brazil. Cuttings of young shoots in sand, under a bell-

glass, in bottom-heat. Summer temp., 60° to 85°; winter, 48° to 55°.

H. longiflora (long-flowered). 2. Blue. August. 1841.

— *alba* (white-flowered). 2. White. May. 1845.

— *violacea* (violet-coloured). 3. Violet. May. 1844.

HIPPEASTRUM. Equestrian Star. (From *hippeus*, a knight, and *astron*, a star; referring to one of the species, *equestre*. Nat. ord., *Amaryllids* [*Amaryllidaceæ*]. Linn., 6-*Hexandria* 1-*Monogynia*. Allied to *Habranthus*.)

This genus of bulbs has no affinity with *Amaryllis*, with which the species are often confounded. Offsets; sandy loam, peat, and leaf-mould. Temp., 60° to 80° when growing; 40° to 50° when at rest.

GREENHOUSE.

H. Banksianum (Banks's). Pink. October. 1840.

— *Forbesii* (Forbes's). 2. Purple, white. July. Cape of Good Hope. 1823.

— *purpureum* (Forbes's purple). 2. Purple. July. Cape of Good Hope. 1823.

— *formosissimum* (handsomest). 1. Dark red. July. N. Amer. 1658.

— *Japonicum* (Japan). Yellow. July. Japan.

— *lineatum* (lined). ¾. April. S. Amer. 1820.

— *puberulum* (modest). 1. Pink. June. Cape of Good Hope. 1795.

— *Slateriana* (Slater's). Red. March. Cape of Good Hope. 1844.

STOVE.

H. ambiguum (ambiguous). White and red. June. Peru.

— *longiflorum* (long-flowered). Whitish and purple. June. Lima. 1836.

— *anomatum* (anomalous). Crimson, green. S. Amer.

— *auricum* (courtly). 1½. Green, crimson. May. Brazil. 1810.

— *glaucophyllum* (milky-green-leaved). Crimson, green.

— *platypetalum* (broad-petaled). 2. Crimson, green. August. Brazil. 1824.

— *barbatum* (bearded-tube). White, green. Surinam.

— *breviflorum* (short-flowered). 3. White, red. April. Buenos Ayres. 1836.

— *bulbosum* (many-bulbed). Orange. Brazil. 1810.

— *acuminatum* (pointed-petaled). Orange. Brazil.

— *crocatum* (saffron-coloured). 1. April. Brazil. 1815.

— *fulgidum* (shining). 1. Light orange. April. Brazil. 1810.

— *igneosens* (fiery). Red, orange. Brazil.

— *ruftium* (refulgent). 1. Orange, scarlet. April. Brazil.

— *calyptratum* (hooded). 1½. Green, red. June. Brazil. 1816.

— *equestre* (equestrian). 1. Orange, green. August. W. Ind. 1710.

— *major* (larger). 2. Orange, green. August. W. Ind. 1710.

— *sempleum* (half-double). 2. Orange, green. August. Cuba. 1809.

— *hybridum* (hybrid). Numerous cross-breed varieties.

— *intermedium* (intermediate). 2. Striped. August. Brazil. 1821.

- H. kermesi-num* (carmine). June. Brazil. 1833.
 — *minia-tum* (vermilion). 1. Vermilion. June. Peru. 1825.
 — *Organeuse* (Organ Mountain). Crimson, white. Brazil. 1841.
 — — *compre'ssum* (flattened). Red, white. Brazil.
 — *psittaci-num* (parrot). 2. Green, scarlet. July. Brazil. 1816.
 — *re'gium* (queen's. Mexican Lily). 2. Scarlet. May. Mexico. 1725.
 — *reticulatum* (netted-veined). 1. Scarlet. April. Brazil. 1777.
 — — *striatifo'lium* (white-striped-leaved). 1. Purple. August. Brazil. 1815.
 — *retine'ria* (netted-nerved). 2. Scarlet. May. W. Ind. 1822.
 — *Solandra'rum* (Solander-flowered). 1½. White, green. May. Guiana. 1839.
 — — *striatum* (streaked-flowered). Green, white.
 — *stylo'sum* (long-styled). 1. Red. April. Maranham. 1821.
 — *variabilis* (variable). 1. Red, white. June. Cape of Good Hope. 1821.
 — *vitta'tum* (striped-flowered). White, red.
 — — *latifo'lium* (broad-leaved). White, red, green.

HIPPON. (From *hippice*, the name of a herb from Pliny, which, he said, if put into a horse's mouth, makes him insensible to hunger or thirst. Nat. ord., *Gentianworts* [*Gentianaceæ*]. Linn., 5-Pentandria 1-Monogynia.)

Stove biennials. Sown in a hotbed, in spring, or the end of summer, and carefully kept in stoves and greenhouses during the winter, they will bloom early the following season.

- H. hyssopifo'lium* (hyssop-leaved). 1. Tawny. July. E. Ind. 1825.
 — *verticilla'tum* (whorled). 1½. White. July. Trinidad. 1817.
 — *visco'sum* (clammy). 2. Yellow. June. Canaries. 1781.

HIPPOBRO'MA. (From *hippos*, a horse, and *bromos*, poison. Nat. ord., *Soapworts* [*Sapindaceæ*]. Linn., 5-Pentandria 1-Monogynia.)

Stove herbaceous perennials, with white flowers. Cuttings, suckers, and division of the roots; sandy loam, peat, and decayed, but dry, cow-dung. Summer temp., 60° to 80°; winter, 48° to 55°. If forced on in spring, they will bloom in the greenhouse. The plants are poisonous even to the touch, and should, therefore, be carefully handled.

- H. brevifo'rum* (short-flowered). July. S. Amer. 1752.
 — *longifo'rum* (long-flowered). May. W. Ind.

HIPPOCRE'PIS. Horse-shoe Vetch. (From *hippos*, a horse, and *crepis*, a shoe; referring to the form of the seed-pod. Nat. ord., *Leguminous Plants* [*Fabaceæ*]. Linn., 17-Diadelphia 4-Decandria.)

Hardy pea-blossomed, yellow-flowered plants. The annuals merely require sowing in the open border, in March or April; the herbaceous trailers require dividing at a similar period. *Bale'rica* is the only shrub it resembles, and requires similar

treatment to the *Coronilla*, needing a cold pit or a greenhouse in winter.

- H. Bale'rica* (Balearic). 2. May. Minorca. 1776. Shrub.
 — *como'sa* (tufted). ½. April. England. Perennial trailer.
 — *glau'ca* (milky-green). ¾. May. Italy. 1819. Perennial trailer.
 — *Helve'tica* (Swiss-tufted). ¼. May. Switzerland. 1819. Perennial trailer.
 — *multisiliquo'sa* (many-podded). 1. July. South Europe. 1570. Annual.

HIPPO'PHAE. Sea Buckthorn. (From *hippos*, a horse, and *phao*, to kill. Nat. ord., *Oleasters* [*Elæagnaceæ*]. Linn., 22-Diccia 4-Tetrandria. Allied to *Shepherdia*.)

- Hardy deciduous shrubs. Layers, suckers, cuttings of the roots, and seeds; common soil. These are first-rate shrubs for the sea-coast, for fixing sands along with *ca'res* and other grasses.
H. rhamnoides (rhamnus-like). 12. May. England.
 — — *angustifo'lia* (narrow-leaved). 2. May. South England.
 — — *Sibi'rica* (Siberian). April. Siberia.
 — *ulicifo'lia* (willow-leaved). 8. Nepaul. 1822.

HIRE'A. (Named after *De La Hire*, a French botanist. Nat. ord., *Malpighiads* [*Malpighiaceæ*]. Linn., 10-Decandria 3-Trigynia.)

Stove climbers. Cuttings of firm young shoots in sand, under a bell-glass, in bottom-heat; sandy, fibry loam, and fibry peat, with a little freestone or charcoal. Summer temp., 60° to 90°; winter, 50° to 60°.

- H. glaucescens* (milky-green). Yellow.
 — *India* (Indian). 10. White. July. E. Ind. 1820.
 — *nutans* (nodding). 10. White. July. E. Ind. 1820.
 — *odora'ta* (sweet-scented). 8. Yellow. Guinea. 1823.

- *reclina'ta* (leaning). 10. Yellow. July. W. Ind.

HOE. This is the implement which should be most frequently in the gardener's hand, for the surface of the soil scarcely can be too frequently stirred. The handles should never be made of heavy wood, for this wearies the hand, and is altogether a useless weight thrown upon the workman. It is merely the lever, and every ounce needlessly given to this diminishes, without any necessity, the available moving power. The best woods for handles are birch or deal.

For earthing-up plants, broad blades to hoes are very admissible, and they may, without objection, have a breadth of nine inches; but for loosening the soil and destroying weeds, they should never extend to beyond a breadth of six inches, and the work will be done best by one two inches narrower. The iron plate of which they are formed should be well steeled, and not more than one-six-

teenth of an inch thick. The weight necessary should be thrown by the workman's arm and body upon the handle; and the thicker the blade, the greater is the pressure required to make it penetrate the soil. It should be set on the handle at an angle of 68° , as this brings its edge at a good cutting angle with the surface of the soil, and the workman soon learns at what point most effectively to throw his weight, and holds the handle further from, or nearer to, the blade, accordingly as he is a tall or short man. Mr. Barnes, of Bicton Gardens, employs nine sized hoes, the smallest having a blade not more than one-fourth of an inch broad, and the largest ten inches. The smallest are used for potted plants and seed-beds, and those from two inches and a half to four inches wide are used for thinning and hoeing among crops generally. These have all handles varying in length from eight inches and a half to eighteen inches, all the neck or upper part formed of iron, for the smaller sizes not thicker than a large pencil, and that part which has to be grasped by the workman is only six inches long, and formed either of willow or some other soft, light wood, which is best to the feel of the hand. Each labourer works with one in each hand, to cut right and left. The blade is made thin, and with a little foresight and activity it is astonishing how much ground can be got over in a short time.

Mr. Barnes has all his hoes made with a crane neck, as in the accompanying sketch No. 1. The blades broader than four inches Mr. Barnes has made like a Dutch hoe, No. 2.

No. 1.



No. 2.



The crane neck allows the blade to pass freely under the foliage of any crop where the earth requires loosening; and the blade works itself clean, allowing the earth to pass through, as there is no place for it to lodge and clog up as in the old-fashioned hoe, to clean which, when used of a dewy morning, causes the loss of much time.

The thrust, or Dutch hoe, consists of a plate of iron attached somewhat

obliquely to the end of a handle by a bow, used only for killing weeds or loosening ground which is to be afterwards raked. As a man can draw more than he can push, most heavy work will be easiest done by the draw-hoe.

In the island of Guernsey a very effective *weeding-prong* is used, something in the shape of a hammer, the head flattened into a chisel an inch wide, and the fork the same. The whole length of this prong is nine inches, and it is attached to a staff five feet long. Such an implement is light and easy to use, it requires no stooping, and will tear up the deepest-rooted weeds.

HOFFMANSE'GGIA. (Named after J. C. Hoffmasegg. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 10-*Decandria* 1-*Monogynia*.)

Stove, yellow, pea-blossomed evergreens. Cuttings of young shoots in sand, in bottom-heat; also division of the plant in spring; peat and loam. Summer temp., 60° to 80° ; winter, 50° to 55° .

H. falcaria (sickle-leaved). 2. July. Chili. 1806. — *prostrata* (trailing). July. Lima.

HOHENBERGIA. (Named after M. Hohenberg, a German botanist. Nat. ord., *Bromelworts* [Bromeliaceæ]. Linn., 6-*Hexandria* 1-*Monogynia*. Allied to *Bilbergia*.)

Stove herbaceous perennial. Suckers, and dividing the plant; peat and loam. Summer temp., 60° to 85° , with plenty of moisture; winter, 50° to 55° , and rather dry. When heat and moisture are applied in the spring, the flower-stems will shortly appear, if the plant was well exposed to the sun in summer, and water gradually withheld in autumn.

H. strobilacæ (coned). Yellow. May. S. Amer. 1842.

HORTZIA. (From *hoitzil*, its Peruvian name. Nat. ord., *Phloxworts* [Polemoniaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Ipomopsis*.)

Greenhouse evergreen shrubs, from Mexico. Cuttings of half-ripened shoots in sand, under a glass; fibry peat and sandy loam. Winter temp., 40° to 45° .

H. cerulea (blue). 1. Blue. June. 1824.

— *coccinea* (scarlet). 3. Scarlet. 1824.

— *glandulosa* (glanded). 2. Pale red. June. 1825.

— *Mexicana* (Mexican). 3. Scarlet. 1824.

HOLARRHENA. (From *holos*, entire, and *arrhen*, a male; referring to the anthers. Nat. ord., *Dogbanes* [Apocynaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Alstonia*.)

Stove evergreen. Cuttings of young shoots, as fresh growth has commenced, in sand, under a bell-glass, and in bottom-heat; peat and loam. Summer temp., 60° to 80° ; winter, 48° to 55° .

H. villosa (shaggy). E. Ind. 1820.

HOLBO'LLIA. (Named after *F. L. Holboll*, of the Royal Botanic Gardens, Copenhagen. Nat. ord., *Lardizabalads* [*Lardizabalaceæ*]. Linn., 21-*Monæcia* 6-*Hexandria*. Allied to *Akebia*.)

Greenhouse climbers, from Nepaul, valued for the fragrance of their dull flowers. Their fruit is eaten in India. Cuttings of half-ripened young shoots in sandy soil, under a glass; open, sandy loam, with a little peat; will stand in a cool greenhouse, in winter, and probably would twine up the wires of a conservative wall in summer.

H. acuminata (pointed-leafted). Purplish. February. 1846.

— *angustifolia* (narrow-leaved). Purple. March.

— *latifolia* (broad-leaved). 10. Green. March. 1845.

HOG-NUT. *Ca'rya porci'na*.

HOG-PLUM. *Spo'ndias*.

HOLLY. (*Ilex aquifolium*.) Of this hardy evergreen shrub there are eight varieties:—1, Silver-edged; 2, Golden-edged; 3, Thick-leaved; 4, Prickly; 5, Yellow-leaved; 6, Variegated; 7, Spotted; 8, Recurved.

The holly will not thrive in any poor, light, sandy soil, or in a swampy situation, but likes a strong, deep, dry, loamy soil. If grown as single ornamental shrubs they should not be overshadowed by other trees; and if the land is manured, so much the better. As to pruning it, with a view to make it grow fast, the less you do of that the better. All that is necessary is to encourage the leader, by stopping any laterals that try to interfere with it.

The most expeditious way of making *holly-hedges* is to procure large plants from some nursery; but, with the smallest expense and more time, the following may be recommended:—Gather a sufficient quantity of berries when ripe; then dig a hole three or four feet deep, and throw the berries in, crushing and mixing them with some fine soil at the same time; close the hole with the soil taken out, and throw some litter, or other covering, over the whole, to prevent the wet or frost penetrating. Take them up and sow them in March. They will make nice little plants the first season; and, by transplanting the stronger ones, you will have fine plants in about three years.

Large hollies are best moved about the third week in August. With a small cord tie up the lower branches, then mark a circle two feet from the bole of the tree, and another circle two feet beyond the first; the space between the two circles must have all the soil dug deeply out of

it; whilst this is going on, let another labourer be digging a hole larger than the ball of the tree will require, making it rather deeper; fill in some of the best soil, chopped fine, and mix it with water till it forms a puddle of the consistence of thick paint. Gradually undermine the ball below the roots till it stands quite loose; then wrap some garden-mats round, and tie the ball firmly together with a strong rope; then wrap the stem round as near the soil as possible with some old carpet or sacking; tie to the stem at that part a stout pole eight or nine feet long; then lower the tree gently down, and let as many men as are necessary to carry it take hold of the pole, and remove the tree to its place, letting it down gently into the hole amongst the puddle, taking care that it is not below, but rather above, the general level; fill in good soil round the ball after the tree is set upright, and the mats, ties, &c., removed. Mix this soil with water till it is a puddle like the bottom; secure the tree with props, to prevent the winds from shaking it.

The best time for cutting hollies is early in the spring, about the end of February, before they have begun to shoot. Never clip them with shears, but cut them in with a sharp knife.

HOLLYHOCK. (*Althæa ro'sea*.) *By Cuttings.*—These are made from the young shoots that rise from the base of the strong flower-stems. They may be formed of the tops only, or, if the young shoots are long, they may be cut into lengths of two joints each, removing the lower leaf, and shortening in the upper one. To cause them to send forth roots, a gentle hotbed should be made either of well-fermented dung, tanner's old bark, or fresh-fallen leaves. As soon as the heat is moderated, place the frame upon it, and a covering of dry saw-dust upon the bed within the frame to the depth of five inches. Then prepare the cuttings, put them round the edge of pots filled with moist, sandy loam, press the earth close to the bottom of each cutting, and fill up the holes with a little more soil. Then plunge them nearly up to the rim in the saw-dust, but give no water, because they are very full of sap, and would damp off immediately. Shade closely and give no air, excepting a little at the back to let out the steam for an hour in the morning. In six

weeks they will begin to show signs of growth, and should then have a little water given without wetting the leaves. When roots are formed, pot them off into small pots, place them in a cold frame kept close, and shaded for a week or two. Then gradually inure them to bear the full sun, and give plenty of air, and moderate but constant supplies of water. They are then ready for planting out. The best time to perform this is in early spring, but it may be done also in August, so as to have them rooted before the winter sets in.

By Division.—Large, strong plants, with numerous shoots, may be taken up as soon as they have done flowering, and be divided with a strong knife. Care must be taken that each division has a good share of roots, and at least one shoot to it. Plant these divisions in a bed in a shady part of the garden, but not under the drip of trees. They may remain here till March, and then are ready to plant out in the place where they are to flower.

By Seed.—Save seed from the most double and best coloured flowers. Clean it from the husks, and keep it in a dry drawer, or in a bag hung up in a dry room. Sow early in March in shallow, wide pans, in a gentle heat. When the seedlings are so large as to be readily handled, transplant them either into boxes three inches apart, or prepare a bed of rich earth in a frame without heat, and plant them out in it at the same distance from each other. As soon as the weather will permit, make a sufficiently large piece of ground very rich with well-decomposed hotbed dung, in a dry, open part of the garden. Take the plants up carefully with a garden trowel, keeping as much earth as possible to each. Carry them, a few at a time, in a basket, to the prepared ground, and plant them out in rows two feet apart, and one foot between each plant. There they may remain till they flower. Then mark such as are well shaped and bright coloured; cut them down, and plant them in the place where they are to flower next season, giving a name to each. Write in a book kept for the purpose a description of each, both of shape and colour. Single and badly-shaped flowers throw away at once.

Soil.—They must have a dry, deep soil, enriched with plenty of manure. If

the situation is damp, they will die off in the winter, unless well drained, and the bed elevated above the natural level.

Summer Culture.—When the plants begin to grow in the spring, give them a mulching about two inches thick, with some light littery manure. This will protect the roots from the drying winds, and strengthen the flower-shoots. Place tall, strong stakes to them in good time, and as they advance in growth, tie the shoots separately to the stakes regularly, but not too tightly, and leave room for the stems to swell. During dry weather, give, once a week, a thorough good watering. If the flowers are intended for exhibition in spikes, cut off their extreme ends. This will cause the flowers to form a fine pyramid of bloom, and make them open more equally and much larger.

Winter Culture.—Cut down the flower-stem as early as possible after the bloom is over, and the seed is ripened. Dig the ground between the plants, leaving it moderately rough to mellow with the weather, adding a dressing of well-decomposed manure. Before the severe frosts are likely to set in, give a mulching of light, half-decayed dung, closing it round the plants. This will keep the roots warm through the frosty weather, and will enrich the ground as it decays.

Insects.—The green fly will, in dry seasons, attack the leaves and young shoots. (*See* APHIS.) Slugs will also attack the young shoots. They must be diligently sought for and destroyed, or, if very numerous, give the ground a watering with clear lime-water occasionally. In new ground, a brown grub is sometimes very destructive by eating off the young shoots just level with the ground. Nothing will kill these except hand-picking, the soil must be stirred with the hand, and the insects found and destroyed.

Diseases.—Sometimes they die off suddenly, the consequence of a too rich or too damp soil. Whenever a plant is struck with this disease it should be instantly removed. If it has any young, healthy shoots, they may be taken off and put in as cuttings. The place must have the soil removed for a foot square, fresh soil put in, and a new healthy plant inserted.

HOLMSKIO'LDIA. (Named after T. Holmskiöld, a Danish botanist. Nat. ord., Labiales, or Lipworts [Lamiaceæ]. Linn., 14. *Didynamia* 2-*Angiosperma*.)

Stove evergreens, with scarlet flowers, from the East Indies. Cuttings of young shoots just getting firm at the base, in sandy soil, under glass, and in heat; sandy peat, and light, fibry loam. Summer temp., 60° to 90°; winter, 50° to 60°.

H. sanguinea (bloody). 4. 1796. Shrub.
— *scandens* (climbing). May. 1824. Climber.

HOMALONE'NA. (From *homalos*, regular, and *nema*, a filament; in reference to the regularity of the numerous stamens. Nat. ord., *Arads* [Aracæ]. Linn., 21-Monæcia 7-Heptandria. Allied to *Richardia*.)

Greenhouse herbaceous perennial. Offsets from the roots, and dividing the plant; rich, open loam. Winter temp., 40° to 45°.

H. cordata (heart-leaved). White. June. China. 1820.

HONESTY. *Luna'ria*.

HONEY-BERRY. *Melico'cca*.

HONEY-DEW. See EXTRAVASATED SAP.

HONEY-FLOWER. *Melia'nthus*.

HONEY-GARLIC. *Nectarosco'rdum*.

HONEY-LOUST. *Gledi'tschia trica'nthos*.

HONEY-SUCKLE. *Caprif'o'lum*.

HONEYWORT. *Ceri'nthe*.

HOOP-PETTICOAT. *Narci'ssus bulboco'dium*.

HOOP-ASH. *Ce'llis crassifo'lia*.

HOP. *Hu'mulus*.

HOP-HORNBEAM. *Phologo'phora*.

HOREHOUND. *Marrubium*.

HORKE'LLA. (Named after *J. Horkel*, a German botanist. Nat. ord., *Roseworts* [Rosacæ]. Linn., 10-Decandria 1-Monogynia. Allied to *Potentilla*.)

Hardy herbaceous perennial. Seeds and dividing the plant in spring; common garden-soil.

H. congesta (crowded-flowered). 2. White. August. California. 1826.

HORM'NUM. (From *hormao*, to excite; its medicinal qualities. Nat. ord., *Lipworts* [Lamiacæ]. Linn., 14-Didynamia 1-Gymnospermia. Allied to *Monarda*.)

Hardy herbaceous perennial. Division of the plant, and seeds in spring; requires a dry situation, or a damp winter will injure it.

H. Pyrena'icum (Pyrenean). 1. Blue. June. Pyrenees. 1820.

HORN. See ANIMAL MATTERS.

HORNBEAM. *Carpi'nus*.

HORN-OF-PLenty. *Fe'dia*.

HORN-POPPY. *Gluu'cium*.

HORSE-CHESTNUT. *Æ'sculus*.

HORSE-RADISH. (*Cochled'ria Armo'ra'cia*.) Delights in a deep, rich soil, banks of a ditch, &c. Should the ground require manure, it should be dug in at the depth at which the sets are intended to be planted. It is propagated by sets, provided by cutting the main root and

offsets into lengths of two inches. The tops, or crowns of the roots, form the best, those taken from the centre never becoming so soon fit for use, or of so fine a growth. Each set should have at least two eyes; for without one they refuse to vegetate at all. For a supply of the crowns, any inferior piece of ground, planted with sets six inches apart and six deep, will furnish from one to five tops each, and may be collected for several successive years with little more trouble than keeping them clear of weeds; but the times for planting are in October and February.

Insert the sets in rows eighteen inches apart each way. The ground trenched between two and three feet deep, the cuttings being placed along the bottom of the trench, and the soil turned from the next one over them. The earth ought to lie lightly over the sets; therefore treading on the beds should be carefully avoided. The shoots make their appearance in May or June, or earlier if the sets were planted in autumn.

Remove the leaves as they decay in autumn; the ground being also hoed and raked over at the same season, which may be repeated in the following spring.

In the succeeding autumn they merely require to be hoed as before, and may be taken up as wanted. By having three beds devoted to this root, one will always be lying fallow and improving; of which period advantage should be taken to apply any requisite manure.

Taking up.—To take them up, a trench is dug along the outside row down to the bottom of the roots, which, when the bed is continued in one place, may be cut off level to the original stool, and the earth from the next row then turned over them to the requisite depth; and so in rotation to the end of the plantation. By this mode a bed will continue in perfection for five or six years, after which a fresh plantation is usually necessary. But the best practice is to take the crop up entirely, and to form a plantation annually; for it not only causes the roots to be finer, but also affords the opportunity of changing the site. If this mode is followed care must be taken to raise every lateral root; for almost the smallest will vegetate if left in the ground.

HORSE-RADISH TREE. *Mori'nga*.

HORSE-SHOE VETCH. *Hippocrep'pis*.

HORSE-THISTLE. *C'srium*.

HOSA'CKIA. (Named after *Dr. Hosack*, an American botanist. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 17-*Diadelphia* 4-*Decandria*. Allied to *Ononis*.)

Hardy plants, with yellow flowers, except where otherwise mentioned. Suitable for front of borders and rock-works; seeds and division of the plants in spring; cuttings of perennials in summer, under a hand-light.

ANNUALS.

H. subpinna'ta (rather-leafleted). June. Chili. 1836.

— *Wrangelia'na* (Wrangel's). June. California. 1836.

HERBACEOUS PERENNIALS.

H. bicolor (two-coloured). $\frac{1}{2}$. Yellow and white. August. N. Amer. 1826.

— *crassifo'lia* (thick-leaved). June. California. 1833.

— *decu'mbens* (lying-down). $\frac{1}{2}$. August. N. Amer. 1827.

— *parvifo'ra* (small-flowered). $\frac{1}{2}$. August. N. Amer. 1827.

— *Purshia'na* (Pursh's). $\frac{1}{2}$. July. N. Amer. 1824.

— *stolonifera* (creeping-rooted). 3. Red. June. N. Amer. 1830.

HOSE IN HOSE is a form of double flowers when one corolla is inserted within the other, as is frequently the case with the primrose.

HO'STA. (Named after *N. T. Host*, a German botanist. Nat. ord., *Verbenas* [Verbenaceæ]. Linn., 2-*Diandria* 1-*Monogynia*. Allied to *Lantana*.)

Stove evergreen shrubs, with blue flowers, from Mexico. Cuttings in sand under a glass, in bottom heat, in spring; peat and loam. Summer temp., 60° to 80°; winter, 48° to 55°.

H. cærulea (sky-blue). 6. July. 1733.

— *latifo'lia* (broad-leaved). 6. July. 1824.

— *longifo'lia* (long-leaved). 6. July. 1826.

HOTBED is a bed of earth, or other material, usually covered by a glazed frame, and heated artificially, and employed either for forcing certain vegetables, for raising seedlings, or for striking cuttings. It is heated either by dung, or leaves, or tan in a state of fermentation, or by hot water.

Hotbed of Stable Dung: Preparation of Dung.—We will commence with the dung fresh at the stable door: the first thing is to throw it into a close body to "sweat." Those amateurs who have plenty, and to spare, will do well to shake it over loosely, and reject a portion of the mere droppings; for these take the most purifying, and, moreover, engender an over-powerful, and sometimes unmanageable heat, which, in unpractised hands, is capable of much mischief. The main bulk of the material thus thrown together will, in a week or so, become exceedingly hot, and

must then be turned completely inside out; and, in so doing, every lock or patch which adheres together must be divided. Water will now be requisite, and must be regularly applied as the work proceeds, rendering every portion equally moist. After the mass has lain for about four days longer, it is well to administer a liberal amount of water on the top; this will wash out at the bottom of the heap much of its gross impurities. In a few more days it must be again turned inside out, using water if dry in any portion, and after laying nearly a week it should be almost fit for use; but it is well to give it even another turn. If any tree-leaves, strawy materials, &c., or any simple vegetable matter is to be added to the mass, it may be added at the last turning but one. The heap ought now to be "sweet," and such may be readily ascertained even by unpractised persons; for a handful drawn from the very interior, and applied to the nostrils, will not only be devoid of impure smell, but actually possess a somewhat agreeable scent, similar to the smell of mushrooms.

Beds.—All things will now be in readiness for building the bed, and one necessary point is to select a spot perfectly dry beneath, or rendered so. It must, moreover, be thoroughly exposed to a whole day's sun; but the more it is sheltered sideways the better, as starving winds, by operating too suddenly in lowering the temperature, cause a great waste of material as well as labour. The ground plan of the bed, or ground surface, should be nearly level. A good builder, however, will be able to rear a substantial bed on an incline; and such is not a bad plan, so forming the slope as to have the front, or south side, several inches below the back; the front being with the ground level, the back raised above it. By such means there will be as great a depth of dung at front as back, which is not the case when the base is level; for then, unluckily, through the incline necessary for the surface of the glass, the dung at back is generally much deeper than the front, at which latter point most heat is wanted. Good gardeners not unfrequently use a portion of weaker material at the back, such as littery stuff, containing little power as to heat. It is well, also, to fill most of the interior of the bed, after building it half a yard in height, with any half-decayed

materials, such as half-worn linings, fresh leaves, &c. This will, in general, secure it from the danger of burning, whilst it will also add to the permanency of the bed.

For winter-forcing a bed should be at least four feet high at the back—if five feet, all the better; and as soon as built let some littersy manure be placed round the sides, in order to prevent the wind searching it. As soon as the heat is well up, or in about four days from the building of it, the whole bed should have a thorough watering. It is now well to close it until the heat is well up again, when a second and lighter watering may be applied; and now it will be ready for the hills of soil any time.

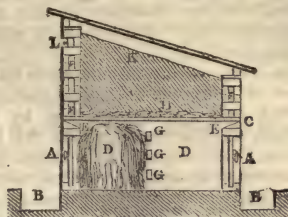
In making the hills of soil for the plants, in forcing melons or cucumbers, make a hollow in the centre of each light, half the depth of the bed. In the bottom of this, place nearly a barrowful of brick-bats, on this some half-rotten dung, and finally a flat square of turf, on which the hillock is placed. It is almost impossible for the roots of the plants to “scorch” with this precaution.

As the heat declines, linings, or, as they might be more properly called, coatings, are made use of, which consist of hot fermenting dung laid from eighteen to twenty-four inches, in proportion to the coldness of the season, &c., all round the bed to the whole of its height; and if founded in a trench, one equally deep must be dug for the coating, it being of importance to renew the heat as much as possible throughout its whole mass. If, after a while, the temperature again declines, the old coating must be taken away, and a similar one of hot dung applied in its place. As the spring advances, the warmth of the sun will compensate for the decline of that of the bed; but as the nights are generally yet cold, either a moderate coating, about nine or ten inches thick, is required, or the mowings of grass, or even litter, may be laid round the sides with advantage.

Various structures have been suggested, whereby the heat only of fermenting dung is employed, and its steam is prevented from penetrating within the frame. One of the best of these structures is the following, proposed by Mr. West:—

D D, chamber in which the dung is placed, three and a half feet deep, surrounded by nine-inch brickwork. One

half of this is filled longitudinally with dung at the commencement, which, if

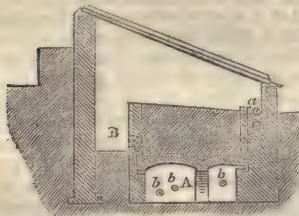


kept close shut up, will last twelve or eighteen days, according to the quality of the dung. As the heat declines, the other side is filled, and the temperature is further sustained by additions to the top of both as the mass settles. When this united heat becomes insufficient, the side first filled being cleared, the old manure must be mixed with some fresh, and replaced, this being repeated alternately to either heap as often as necessary. A A, are the doors, two of which are on each side for the admission of the dung. They are two and a half feet square, fitted into grooves at the bottom, and fastened by means of a pin and staple at the top. B B, are small areas sunk in front, surrounded by a curb of wood; G G G, are bars passed longitudinally as a guide and support in packing the dung; C, represents a bar of cast-iron, two inches wide, and three quarters of an inch thick, placed on the edge of which there is a row, a foot asunder, across the chamber, to support a layer of small wood branches and leaves, H, for the purpose of sustaining the soil, K, in the upper chamber; E E, represents the orifices, of which there are a series all round the pit, communicating with the flue F F F, which surrounds the beds; the exterior wall of this flue is built with bricks laid flat, the inner one of bricks set on edge. The flue is two inches wide, and, for the sake of strength, bricks are passed occasionally from side to side as ties. The top of the flue, and the internal part of the wall, which rises at the back and front to the level the earth is meant to stand, are covered with tiles, over the joints of which slips of slate, bedded in mortar, are laid, to prevent the escape of the steam of the dung; I, represents one of two plugs, which stop holes left to regulate the heat and steam

as may be necessary. The outer wall supports the lights. For the convenience of fixing the dung, it is best to fill half of the chamber at the commencement, before the branches, mould, &c., are put in.

Hot-Water Beds.—If hot water be the source of heat, the following sketch of the bed and frame employed by Mr. Mitchell, at Worsley, is about the best that can be employed. The objects kept in view when it was constructed, were—1st. A circulation of air without loss of heat. 2nd. A supply of moisture at command, proportionable to the temperature. 3rd. A desirable amount of bottom-heat. 4th. A supply of external air (when necessary) without producing a cold draught.

The method by which the first of these is accomplished will be understood by referring to the section, in which *a* is the flow-pipes, *b b b* the return-pipes in the chamber *A*. It is evident that, as the air in the chamber becomes heated, it will escape upwards by the opening *c*; and the cold air from the passage *B* will rush in to supply its place; but the ascending current of heated air, coming in contact with the glass, is cooled, descends, and entering the passage *B*, passes into the chamber *A*, where it is again



heated; and thus a constant circulation is produced. In order to obtain the second object, to some extent are combined the tank-and-pipe systems. The flow-pipe *a* is put half its diameter into the channel *c*, which, when filled with water (or so far as is necessary), gives off a vapour, exactly proportionable to the heat of the pipe and pit.

The third requisition is produced by the surrounding atmosphere and heating materials. The fourth is accomplished simply by lowering the upper sash; the cold air thus entering at the top only, falls directly into the passage *B*, and passes through the hot chamber be-

fore coming in contact with the plants. When the heat in the chamber is 95°; in the open space over the bed it is 71°; in the bottom of the passage only 60°; and in the mould in the bed it is 80°. The amount of vapour is regulated with the greatest facility, even from the smallest quantity to the greatest density.—*Gard. Chron.*

HOTHOUSE. See **STOVE**.

HOTTENTOT BREAD. *Diosco'rea*.

HOTTENTOT CHERRY. *Cassi'ne Mauro-ce'nia*.

HOTTENTOT FIG. *Mesembrya'nthemum edu'le*.

HOTTO'NIA. Water Violet. (Named after *P. Hotton*, a Dutch botanist. Nat. ord., *Primeworts* [Primulacæ]. Linn., 5-Pentandria 1-Monogynia.)

A hardy aquatic or marsh plant. Divisions in spring; ponds or ditches.

H. palustris (marsh). 1. Flesh. August. England.

HOT WALL is a hollow wall, the interior air being so heated by flues or hot water as to keep the bricks of which its faces are composed so warm as to promote the ripening of the wood and fruit trained against them. See **WALL** (*Flued*).

HOT WATER, as a source of heat for gardening purposes, is preferable to any other for large structures. In these it is less expensive, and in all it is more manageable and less troublesome than any other. See **GREENHOUSE**, **HOTBED**, and **STOVE**.

HOULLE'TIA. (Named after *M. Houlet*, a French gardener. Nat. ord., *Orchids* [Orchidacæ]. Linn., 20-Gynandria 1-Monandria. Allied to *Stanhopea*.)

Stove orchids. Division of the plant; peat, broken pots, charcoal, and rotten wood; plants elevated above the pot, or in a shallow basket. Summer temp., 60° to 90°; winter, 50° to 60°.

H. Brocklehurstia'na (Mr. Brocklehurst's). 2. Brown, yellow. June. Brazil. 1841.

—*vittata* (striped). 1. Brown, yellow. June. Brazil. 1841.

HOUND'S TONGUE. *Cynoglo'ssum*.

HOUSELEEK. *Sempervivum*.

HOUSTONIA. (Named in honour of *Dr. W. Houston*, an English botanist. Nat. ord., *Cinchonads* [Cinchonacæ]. Linn., 4-Tetrandria 1-Monogynia.)

Hardy herbaceous perennials, from North America. Division in spring; sandy loam and peat; beautiful for small beds and rock-works. This genus should be added to *Bouvardia*.

H. albifl'ra (white-flowered). White. June. 1823.

—*cerulea* (blue). ‡. Blue. June. 1785.

—*ciliat'a* (hair-fringed). Whitish. July.

—*longifol'ia* (long-leaved). ‡. Scarlet.

H. purpurea (purple). 1. Purple. July. 1800.
— *serpyllifolia* (wild-thyme-leaved). 4. White.
July. 1826.

— *tendera* (tender). Purple. May. 1812.

HOETTUNIA. (Named after Dr. Houttuyn, of Amsterdam. Nat. ord., *Saururads* [Saururaceæ]. Linn., 3-*Triandria* 3-*Trigynia*.)

Herbaceous greenhouse marsh-plant, from Japan, with yellowish-green flowers. Seeds, or dividing the plant in spring; peat and loam, kept moist, and the plant a little shaded. Winter, temp., 40° to 50°. *H. cordata* is really *Polyg. cuspidatum*.

H. foetida (foetid). 4. July. 1800.

HOVEA. (Named after A. P. Hove, a Polish botanist. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 16-*Monadelphia* 6-*Decandria*. Allied to *Lalage*.)

Greenhouse evergreen shrubs, from New Holland, with purple flowers, except where otherwise mentioned. Seeds, which should be sown in a hotbed, and moistened in warm water before sowing; cuttings of young side-shoots in April or May, in sand, under a bell-glass, and kept in a close frame; sandy peat with a very little fibry loam, and pieces of charcoal and freestone, or small pieces of pounded bricks. Winter temp., 40° to 48°, with plenty of air; in summer they should be a little shaded from bright sunshine.

H. Celisi (Celis). 4. Blue. June. 1818.
— *crispa* (curled). 2. February. 1837.
— *elliptica* (oval-leaved). 3. April. 1817.
— *ilicifolia* (holly-leaved). 3. April. 1844.
— *lanceolata* (spear-head-leaved). 3. May. 1805.
— *latifolia* (broad-leaved). 3. June. 1820.
— *linearis* (narrow-leaved). 3. July. 1796.
— *longifolia* (long-leaved). 3. July. 1805.
— *Manglei* (Captain Mangles). 1. January. 1837.

— *mucronata* (sharp-pointed). 4. May. 1824.
— *pinnata* (ragged). 3. May. 1824.
— *pungens* (pungent). Blue. 1837.
— *major* (larger). Blue. May. 1841.
— *purpurea* (purple). 3. June. 1820.
— *racemulosa* (spikeleted). 2. May. 1842.
— *rosmarinifolia* (rosemary-leaved). 3. Blue. June. 1824.

— *splendens* (shining). 2. Blue. March. 1843.
— *trisperma* (three-seeded). Vermilion. May.
— *villosa* (shaggy). 3. Lilac. April. 1829.

HOVENIA. (Named after D. Hoven, a Dutch senator. Nat. ord., *Rhamnads* [Rhamnaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Alaternus*.)

Greenhouse evergreen shrubs, with white flowers. Cuttings of ripe young shoots in sand, under a glass; sandy loam and a little peat. Winter temp., 40° to 45°. *H. dulcis* has stood against a wall in the Horticultural and Kew Gardens, with a little protection.

H. dulcis (sweet). 8. July. Japan. 1812.
— *inequalis* (unequal). 10. Nepaul. 1820.

HOYA. Honey Plant. (Named after Mr. Hoy, once gardener at Sion House. Nat. ord., *Asclepiads* [Asclepiadaceæ]. Linn., 5-*Pentandria* 2-*Digynia*.)

Stove evergreen twiners. Cuttings inserted in

almost any open soil, and plunged in a moist heat, root quickly; even the leaves will root, and soon produce a plant; peat and loam, with a considerable portion of little pieces of pounded bricks and lime-rubbish. They flourish best in the temperature of the stove, and full exposure to the sun; but in winter they should be kept rather dry, and in the temperature of a warm greenhouse—45°, 50°, or even lower.

H. atropurpurea (dark purple). Brownish-purple. September. Java. 1848.

— *australis* (southern). White. N. Holland. 1820.
— *bella* (beautiful). 1½. White, purple. Taung Kola. 1847.

— *campanulata* (bell-flowered). Green, yellow. May. Java. 1845.

— *carnea* (fleshy-leaved). 10. Pinkish-white. July. Asia. 1802.

— *foliis-variegatis* (variegated-leaved). 10. Pink. July.

— *cinnamomifolia* (cinnamon-leaved). 10. Pale green. July. Java. 1847.

— *coriacea* (leathery). 2. White, yellow. August. Manilla. 1838.

— *crassifolia* (thick-leaved). 10. China. 1817.

— *fraterna* (brotherly). Brown. July. Java. 1851.

— *fruticosa* (shrubby). 1848.

— *fusca* (dark brown). Brownish. Sylhet. 1837.

— *imperialis* (imperial). 20. Scarlet. June. Borneo. 1847.

— *lacunosa* (furrowed). 3. Greenish-yellow. March. Java. 1854.

— *ovalifolia* (oval-leaved). Pinkish-yellow. July. E. Ind. 1840.

— *palida* (pale). 6. White. July. E. Ind. 1815.

— *parasitica* (parasitical). Yellow. E. Ind.

— *Potsii* (Pots). 10. Yellow. E. Ind. 1824.

— *trineervis* (three-nerved). 10. Yellow. July. China. 1824.

The last two are probably varieties of *H. carnea*. *Fraterna* is brother to *coriacea*.

HUDSONIA. (Named after W. Hudson, F.R.S., author of the *Flora Anglica*. Nat. ord., *Rock-roses* [Cistaceæ]. Linn., 11-*Dodecandria* 1-*Monogynia*. Allied to *Helianthemum*.)

Half-hardy evergreens, from North America, with yellow flowers. Generally by layers in spring and autumn, and cuttings in sand, during summer, under a hand-light; sandy peat, and a moist situation. They require a little protection in winter, and may be placed in a pit. Unlike any other group of the order, the foliage more resembles a Heath than a *Cistus*.

H. ericoides (heath-like). 1. June. 1805.

— *Nuttallii* (Nuttall's). 1. July.

— *tomentosa* (downy). 1. May. 1826.

HUEBENIA. (Named after J. Huernius, a collector of Cape plants. Nat. ord., *Asclepiads* [Asclepiadaceæ]. Linn., 5-*Pentandria* 2-*Digynia*. Allied to *Stapelia*.)

Greenhouse evergreen succulents, from the Cape of Good Hope. Cuttings in spring, well dried before inserting, or dividing the plant after flowering; sandy loam, and a little peat, leaf-mould, and lime-rubbish; plenty of water when growing and flowering, but dry, or nearly so, during the winter. Summer temp., 60° to 85°; winter, 45° to 50°.

H. barbata (bearded). 4. White-striped. August. 1795.

H. clavigera (club-bearing). ♀. Yellow-striped. September. 1795.

— *crispata* (curled). ♀.

— *humilis* (humble). ♀. Yellow-striped. September. 1795.

— *lentiginosa* (freckled). ♀. Yellow-striped. 1795.

— *ocellata* (eyed). ♀. Yellow-striped. September.

— *reticulata* (netted). ♀. Pink-striped. August. 1793.

— *venusta* (graceful). ♀. Yellow-striped. June. 1795.

HUGELIA. (Named after *Baron Hugel*, of Vienna. Nat. ord., *Phloxworts* [Polemoniaceæ]. Linn., 5-Pentandria 1-Monogynia. Allied to *Gilia*.)

Hardy annuals, from California. Seeds sown in open border, in March; common garden-soil.

H. densiflora (crowded-flowered). ♀. Blue. June. 1833.

— *elongata* (lengthened). ♀. Blue. June. 1833.

— *lanata* (woolly). ♀. Light blue. July. 1847.

— *lutea* (yellow). ♀. Yellow. June. 1833.

— *virgata* (twiggy). ♀. Blue. June. 1833.

HUMATA. (Probably from *humatus*, interred; the stems being deep in the earth. Nat. ord., *Polypods* [Polypodiaceæ]. Linn., 24-Cryptogamia 1-Filices.)

Stove Ferns, with brownish-yellow spores. Division; peat and loam. See **FERNS**.

H. angustata (narrow). April. Singapore.

— *heterophylla* (various-leaved). April. Samaria.

— *pectinata* (comb-like). April. Isle of Luzon.

— *pedata* (double-lobed). May. E. Ind.

HUMBLE PLANT. *Mimosa pudica*.

HUMEA. (Named after *Lady Hume*. Nat. ord., *Composites* [Asteraceæ]. Linn., 19-Syngenesia 1-Equalis.)

Greenhouse biennial. Sow in heat, in spring; prick out and grow under glass; place out of doors in the heat of the summer; house in good time in the autumn; shift into larger pots as wanted, and transfer to its blooming-pots in April, or plant out in good, rich soil in May. Single plants in a sheltered corner have a fine effect.

H. elegans (elegant). 6. Red. July. N. S. Wales. 1800.

HUMULUS. The Hop. (From *humus*, the ground; creeping on the ground if not supported. Nat. ord., *Hempworts* [Cannabinaceæ]. Linn., 22-Diacia 5-Pentandria.)

Hardy perennial twiner. Seeds and divisions in spring; deep, loamy soil. It is useful for summer shade, as it grows very quick.

H. lupulus (common. Hop). 15. Yellow. July. Britain.

— *variegatus* (striped-leaved). 15. Yellow. July. Britain.

HUMUS. When the putrefaction of dead plants is completed, there remains a soft, black mass, known as vegetable mould, or humus. One hundred parts of the humus of wheat straw have of extractive, or apotheme, rather more than twenty-six parts, and the residue is lime,

peroxide of iron, phosphate of lime, and carbonaceous matter. This apotheme is identical with the humic acid of Liebig, the ulmic acid of Braconnot, and the geic acid of Berzelius. It contains—carbon, 46.6; hydrogen, 20.0; oxygen, 33.4. It was once believed, indeed, is still believed by a few men of science, that this apotheme is the immediate fertilizing component of organic manures, being soluble under some circumstances, and entering at once into the roots of plants, dissolved in the moisture of the soil. But every relative research of more modern chemistry is against this conclusion; and it is now tolerably certain, that a chief nutritive portion of vegetable manures is their carbon converted into carbonic acid, absorbed either in solution with the earth's moisture, or in gaseous form by the roots.

HUNGARIAN LOTUS. *Nymphaea therma'lis*.

HUNNEMANNIA. (Named after *J. Hunnemann*, a botanical agent. Nat. ord., *Poppyworts* [Papaveraceæ]. Linn., 13-Polyandria 1-Monogynia.)

Greenhouse herbaceous perennial. Seeds in spring; rich soil; will bloom the second year in greenhouse treatment, or may be kept over the winter in a dry, cold pit.

H. fumariaefolia (fumaria-leaved). 2. Yellow. Mexico. 1827.

HUNTLEYA. (Named after the *Rev. Mr. Huntley*, a zealous collector of plants. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-Gynandria 1-Monandria. Allied to *Zygopetalum*.)

Stove orchids. Slips of shoots, and dividing the plant; fibry peat, &c.; grown in a high, moist temperature. Summer temp., 60° to 90°; winter, 55° to 60°.

H. meleagris (Guinea-hen). 1. Yellow, brown. July. S. Amer. 1836.

— *sessiliflora* (stalkless-flowered). Violet. Guiana. 1835.

— *violacea* (violet-coloured). Violet. June. Guiana. 1837.

HURRA. Sand-box-tree. (The native name. Nat. ord., *Spurgeworts* [Euphorbiaceæ]. Linn., 21-Monacia 11-Monadelphia. Allied to *Hippomane*.)

Stove evergreen trees, with whitish-yellow flowers. Seeds, and cuttings of ripe young shoots under a bell-glass, in sandy soil, and in heat; rich loam and peat. Summer temp., 60° to 80°; winter, 50° to 55°.

H. crepitans (rattling. *Equal-toothed*). 12. S. Amer. 1733.

— *strepens* (sounding. *Unequal-toothed*). 12. S. Amer.

HURDLES of iron are the most eligible modes of fencing, whether for perma-

nency or temporary purposes. They are invisible at a short distance, elegant, and durable. See RAILING.

HUSKY. The dung for a hotbed, when too dry, is said to be husky.

HUTCHINSIA. (Named after *Miss Hutchins*, an accomplished Irish cryptogamist. Nat. ord., *Crucifers* [Brassicaceæ]. Linn., 15-*Tetradynamia*. Allied to *Lepidium*.)

Annuals, by seeds in April, in dry situations. Herbaceous perennials, by seed and divisions in spring, and cuttings under a hand-light, in summer; sandy loam, with a little peat or leaf-mould, and dry situations, such as banks or rock-work.

HARDY ANNUALS.

H. petraea (rock). $\frac{1}{2}$. White. April. England. — *procumbens* (lying-down). $\frac{1}{2}$. White. May. South Europe. 1823.

HARDY HERBACEOUS.

H. alpina (alpine). $\frac{1}{2}$. White. May. South Europe. 1775. — *brevistyla* (short-styled). White. May. Syria. 1825. — *calycina* (large-calyled). $\frac{1}{2}$. White. April. Siberia. 1823. — *cepeaefolia* (cepea-leaved). $\frac{1}{2}$. Pink. June. Carinthia. 1824. — *pusilla* (dwarf). June. Caucasus. 1821. — *rotundifolia* (round-leaved). $\frac{1}{2}$. White, purple. June. South Europe. 1759. — *stylota* (long-styled). $\frac{1}{2}$. White, pink. June. Caucasus. 1825.

HYACINTHUS. The Hyacinth. (In mythology, a beautiful boy, who, after being killed, was transformed into this flower. Nat. ord., *Lilyworts* [Liliaceæ]. Linn., 6-*Hexandria* 1-*Monogynia*.)

Offsets from the bulbs, after the foliage has died down in summer; light, rich, sandy loam, with a little leaf-mould. A valuable bulb for forcing. Best florists' kinds grown out of doors, should be taken up after the foliage is withered, kept in shelves and drawers until the end of autumn, and then planted and protected from severe frost in winter, and frost and heavy rains in spring, by an awning. For a brilliant out-door display, where the kinds are not so valuable, the roots may remain in the ground many years if top-dressed, and the bulbs are not too near each other. When grown in pots, these should be deeper than usual, in proportion to the diameter—nine inches are not too much. The compost we have found most suitable for them in pots is a good loam, three-fourths, and decayed cow-dung, two years old, one-fourth. In October they ought to be potted, and immediately plunged in tan or ashes, quite overhead, at least two inches. In potting, make the soil very firm under the bulb, to prevent the roots going directly down too soon. In a month after potting and plunging, a few may be brought into heat, and forced to flower about Christmas; and others may be brought in, month after month, to supply flowers till May. To grow them in water, glasses with a hollow cup at the top, to hold the bulb, are used. It is not good to begin too soon with glasses. December is quite early enough. After being kept for a few days in slightly-damped sand, they should be

placed in their glasses. At first the water should only just touch the base of the bulbs, and the glasses should be kept in a dark closet until the roots have attained the length of an inch. Two drops of spirit of hartshorn may be added to the water in each glass when the bulbs are growing, and whenever the water is changed. Dark-coloured glass is always to be preferred, as the absence of light is natural to all roots. By keeping the glasses in a dark closet until the roots are full an inch long, the hyacinths will not get top-heavy, but the roots, being in advance of the leaves, will preserve the plant balanced erect. The bloom will also be finer, as the roots will be in a state to nourish the leaves before these are prematurely advanced. A piece of charcoal put into each glass feeds the plant, and prevents putridity in the water.

H. amethystinus (amethyst-colour). $\frac{2}{3}$. Blue. April. South Europe. 1759.

— *brumalis* (winter). $\frac{2}{3}$. Various. February. — *orientalis* (oriental). $\frac{2}{3}$. Blue. March. Le-vant. 1596. — — *albus* (white). $\frac{2}{3}$. White. March. 1596. — — *flavus* (yellow). $\frac{2}{3}$. Yellow. March. 1596. — — *multipler* (double). $\frac{2}{3}$. Variegated. April. 1596. — — *ruber* (red). $\frac{2}{3}$. Red. March. 1596. — — *semiple-nus* (semi-double). $\frac{2}{3}$. Variegated. March. 1596. — *spicatus* (large-spiked). $\frac{1}{2}$. Blush. February. Zante. 1826. — *viridis* (green). Green. August. Cape of Good Hope. 1774.

HYBANTHE'RA. (From *hybos*, a curve, and *anthera*, an anther, or pollen-bag; referring to the curve in the gouty anthers. Nat. ord., *Asclepiads* [Asclepiadaceæ]. Linn., 5-*Pentandria* 2-*Digynia*. Allied to *Pergularia*.)

Stove herbaceous climber. Divisions of the plant; cuttings, when growth commences; sandy loam and peat. Summer temp., 60° to 85°; winter, 50° to 55°.

H. cordifolia (heart-shaped-leaved). Green, yellow. May. Brazil. 1840.

HYBRIDIZING, OR CROSS-BREEDING, though not quite identical, have with the gardener similar objects, viz., either improving the beauty of his flowers, or the flavour and prolificacy of his fruits and culinary products. Hybridizing, strictly speaking, is obtaining a progeny between two different species, by fertilizing the stigma of one with the pollen of another; and cross-breeding is obtaining a progeny between varieties of the same species. The progeny of hybrids cannot produce seed; but cross-breeds are fertile. Our own observations, and those of others, justify the following statements, as affording some guide to the raiser of varieties:—

1. The seed-vessel is not altered in appearance by impregnation from another plant; therefore, no hasty conclusion of failure is justified by that want of change.

2. The colour of the future seed, not

of that first hybridized, seems to be most influenced by the male plant, if its seeds and flowers are darker than those of the female. Capt. Thurtell, from his experiments on the pelargonium, found the colour and the spot of the petals to be more influenced by the male than by the female parent. Indeed, all experience proves that the progeny usually, though not invariably, most resembles in colour the male parent.

3. Large stature and robustness are transmitted to the offspring by either parent; but Mr. Knight generally found the most robust female parent produced the finest offspring.

4. Capt. Thurtell, from lengthened observation and experiment, has ascertained that the form of the petals follows most closely that of the female parent.

5. Mr. Knight says that the largest seed from the finest fruit that has ripened earliest and most perfectly should always be selected. In stone-fruit, if two kernels are in one stone, these give birth to inferior plants.

6. The most successful mode of obtaining good and very distinct varieties is to employ the pollen from a male flower grown on another plant than that bearing the female parent. To avoid previous and undesired impregnation, the anthers in the female parent, if they are produced in the same flower with the pistils, must be removed by a sharp-pointed pair of scissors, and the flower inclosed in a gauze bag, to exclude insects, until the desired pollen is ripe. Another effectual mode of avoiding undesired impregnation is bringing the female parent into flower a little earlier than its congeners, and removing the anthers as above described: the stigma will remain a long time vigorous if unimpregnated.

7. When double flowers are desired, if a double flower should chance to have a fertile anther or two, these should be employed for fertilization, as their offspring are almost sure to be very double.

HYDRANGÆA. (From *hydor*, water, and *ageion*, a vessel; referring to the cup-form of the capsule, or seed-vessel. Nat. ord., *Hydrangeads* [Hydrangeaceæ]. Linn., 10-*Decandria* 2-*Digynia*.)

Deciduous shrubs. Propagated by division of the roots, cuttings of the ripened shoots, and flourishing best in moist, sheltered places, *Hortensis*, the common garden Hydrangea, though a little more tender, stands the winter well in the southern parts of the island; and though cut-

down in most winters in the neighbourhood of London, yet, if a slight protection of mulching is thrown over the roots, the stems will rise strongly, and bloom well after Midsummer, if care be taken to remove all the weaker ones, just as is done with a *Fuchsia* stool. This species makes, also, fine ornaments in pots, and may be propagated at almost any time; the young wide-shoots, when two or three inches in length, inserted in sandy soil and in heat, striking in a few days, while the old stems will strike anywhere, but require their time. To grow it well requires light, rich compost, well drained, and abundance of water. The flower generally appears first of a greenish colour, becoming of a pale rose; but in some districts the colour becomes a beautiful blue. Notwithstanding all the experiments that have been made, there is still a little doubt as to the cause that produces the change. When iron filings and a solution of alum are used, in some soils the blue colour is produced, while the same means will not produce it in others; and other soils will almost invariably produce this blue colour without any peculiar matter whatever being added. The loams at Kenwood, at Hampstead Heath, and Starmore Heath, and the peats at Wimbledon, as well as some bogs near Edinburgh, are famous for producing this blue in the *Hydrangea*. When trying artificially with iron filings and alum-water, we have had different colours on the same plant. This variation is merely temporary—it cannot be propagated like a variety: a cutting from a blue plant will produce a rose one, unless the peculiar treatment be continued.

GREENHOUSE.

- H. Belzoni's* (Belzoni's). 3. Blue. Japan.
— *Japonica* (Japan). 3. Blue, white. July.
Japan. 1843.
— — *cervula* (blue flowered). 3. Blue, white.
June. Isle of Nepau. 1844.
— *stellata* (starry-flowered). 3. Pink. July.
Japan.

HARDY.

- H. arboreascens* (tree-like). 6. White. July.
Virginia. 1736.
— — *discolor* (two-coloured-leaved). 6. White,
green. August. N. Amer.
— *cordata* (heart-leaved). White. July. Caro-
lina. 1806.
— *heteromalla* (various-surfaced-leaved). 4.
White. Nepal. 1821.
— *hortensis* (garden). 3. Pink. May. China. 1740.
— *nivea* (snow-white-leaved). 5. White. August.
Carolina. 1786.
— — *glabella* (smoothish-leaved). 5. White,
green. July.
— *quercifolia* (oak-leaved). 4. White. July.
Florida. 1803.

HYDRANTIS. Yellow Root. (From *hydor*, water; referring to the marshy places where it grows. Nat. ord., *Crowfoots* [Ranunculaceæ]. Linn., 13-*Polyandria* 1-*Monogynia*. Allied to *Adonis*.)

Hardy herbaceous perennial. Division of the root; loam and peat; moist situation.

H. Canadensis (Canadian). 4. Green. May. N. Amer. 1759.

HYDROLEA. (From *hydor*, water, and *elaia*, oil; referring to the marshy habitat and oily feel of the leaves. Nat. ord.,

Hydrophyls [Hydrophylacæ]. Linn., 5-Pentandria 2-Diöynia.)

Greenhouse herbaceous plants. Divisions, cuttings, and seeds; *spino'sa* is a small aquatic, growing best in peat and loam; *quadrivalvis* is also found in boggy places.

H. quadrivalvis (four-divided). Pale blue. July. Carolina. 1824.

— *spino'sa* (thorny). 1. Blue. S. Amer. 1791.

HYDROME'STUS. (From *hydor*, water, and *mestos*, half; referring to the plant living in water during the rainy season. Nat. ord., *Acanthads* [Acanthacæ]. Linn., 14-Didynamia 2-Angiospermia.)

Stove evergreen shrubs. Cuttings of young shoots any time in spring and summer, in sandy soil, and bottom-heat; peat and loam. Summer temp., 60° to 80°; winter, 48° to 55°.

H. maculatus (spotted). 2. Yellow. May. Mexico. 1842.

HYDROPE'LITIS. (From *hydor*, water, and *pelte*, a shield; referring to the floating shield-like leaves. Nat. ord., *Watershields* [Cabombacæ]. Linn., 13-Polyandria 6-Polyöynia.)

A very neat little hardy water-plant, well worth growing by the edges of an aquarium, round a mass of water-lilies, its nearest allies. Division; marshy soil; should be protected in winter.

H. purpurea (purple). Red. July. N. Amer. 1798.

HYDROPHYLLUM. Water-leaf. (From *hydor*, water, and *phyllon*, a leaf. Nat. ord., *Hydrophyls* [Hydrophylacæ]. Linn., 5-Pentandria 1-Monogöynia. Allied to *Monophila*.)

Hardy herbaceous perennials, from North America. Divisions and suckers; rich loam and peat; in marshy situations.

H. appendiculatum (appendaged-calyced). 2. Blue. May. 1812.

— *Canadense* (Canadian). 4. White. May. 1759.

— *Virginicum* (Virginian). 4. Blue. June. 1739.

HYDROTE'NIA. (From *hydor*, water, and *tainia*, a band; referring to a triangular band in the flower secreting a liquid. Nat. ord., *Irids* [Iridacæ]. Linn., 3-Triandria 1-Monogöynia. Allied to *Beatonia*.)

A pretty half-hardy bulb, with the aspect of a *Tigridia*, and flowers like a *Fritillaria*. Seeds, sown when ripe, or kept, and given a little heat in the spring; division of the offsets; light, rich, sandy loam; taken up, and kept after the foliage is decayed, and planted out the following spring. If left in the ground, and covered to protect from rains and frosts, the plants will be stronger than if the bulbs were kept dry all the winter.

H. lobata (lobed-flowered). 13. Yellow, purple. May. Lima. 1843.

— *meleagris* (Guinea-fowl-like). 1. Yellow. July. Mexico. 1837.

HYGROMETER. An instrument for ascertaining the quantity of moisture in the air. Everything that swells by moisture, and contracts by dryness, is capable of

being formed into one. Every gardener, who has taken a cool bunch of grapes into a hothouse well-supplied with moisture, would, in the grapes almost instantly being covered with dew, see the principle upon which the hygrometer acts. The colder the grapes, the warmer the house, the more the vapour contained in it, the sooner would the dew be formed, and the more plentiful its deposite. Pouring cold water into a glass tumbler, in similar circumstances, will be attended with a similar result: dew will be deposited on the outside of the glass; because, in either case, the cold body condenses the vapour in its neighbourhood; and this is what is called the dew point, being that temperature at which moisture is deposited from the surrounding atmosphere upon any object of that particular temperature. The drip in frames, greenhouses, &c., is similarly caused. The thermometer is the best instrument for showing the temperature; and by taking two similar ones, covering their bulbs with a fold of muslin or silk, keeping one dry and the other wet, with a thread of floss-silk acting as a syphon from a vessel of water, the greater the difference of temperature indicated by the moist and dry thermometer, the greater the deficiency of atmospheric moisture. The nearer the temperature of the moist and dry bulb, the nearer is the air to being saturated with moisture. To obtain more perfect details *Daniel's Hygrometer* is the best instrument. It is represented in the following figure. It



consists of two hollow glass balls containing ether, and communicating by the glass tube which rests on the support. The ball which forms the termination of the longer leg is of black glass, in order that the formation of dew on its surface may be the more perceptible.

It includes the bulb of a delicate thermometer dipping in the ether, its scale being inclosed in the tube above the ball; and whatever change takes place in the temperature of the ether is indicated by this thermometer. The other ball is covered with muslin.

In making an observation it is first necessary to note down the temperature of the air; next turn the instrument, so that when the muslin-covered ball is held in the hand, the ether may escape into the blackened ball; and it should also be held till the included thermometer rises a few degrees above the temperature of the air, when it should be replaced on the support. Then drop, or gently pour, a little ether on the muslin. The evaporation of this extremely volatile substance produces cold; and attention must be instantly directed to the black glass ball and included thermometer. The latter will be seen falling rapidly; and at length a ring of dew will appear at the line which runs across the black ball—quickly, if the air is very moist, slowly, if the air is dry. If the air is very dry, no moisture will be thus deposited till the thermometer falls to 10°, 20°, or 30° below the temperature of the air. But at whatever temperature the dew forms, that temperature should be noted as the dew-point; and the difference between it and the temperature of the air, at the time, is the degree of dryness according to the indications of this hygrometer. Thus, in a moderately dry day, let it be supposed that the temperature of the air is 65° in the shade, and that the muslin requires to be kept moist, before dew is formed, till the blackened ball containing the ether has its temperature reduced to 50°, as indicated by the included thermometer, there are then said to be 15° of dryness. Again, supposing the temperature is 85°, and the dew-point found, as before, to be 70°, the degree of dryness is still expressed by 15°; but the quantity of moisture diffused in the air is, notwithstanding, somewhat greater in the latter case than in the former. If 1000° represent complete saturation, the quantity of moisture, when the temperature is 65° and the dew-point 50°, will be 609; but when the temperature is 85° and the dew-point 70°, the moisture will be represented by 623; these numbers being ascertained by tables prepared for the purpose. The difference, however, in such a case is so small, it is not worth taking into account in a horticultural point of view. But as these numbers can only be ascertained by calculation, it is more convenient to reckon by the degrees of dryness, bearing in mind that the dryness of the air is indicated by the difference be-

tween the temperature of the air and of the dew-point. Thus, if the ring of dew is formed as soon as ether is applied, and only 1° difference is observable, the air is nearly saturated; if the difference is 5° to 10° the dryness is very moderate; while 15° to 20° of difference indicate excessive dryness, and beyond this the air is parching.—*Gard. Chron.*

HYGROPHILA. (From *hygros*, moist, and *phileo*, to love; referring to the habitat of the plant. Nat. ord., *Acanthads* [*Acanthaceæ*]. Linn., 14-*Didynamia* 2-*Angiospermia*. Allied to *Ruellia*.)

Stove evergreens, from the East Indies. Cuttings of young shoots in sandy soil, in heat; peat and loam. Summer temp., 60° to 80°; winter, 45° to 55°.

H. longifolia (long-leaved). Purple. June. 1821.

— *ringens* (gaping). *h.* 1820.

— *salicifolia* (willow-leaved). Violet. June. 1822.

HYLESINUS PINIPERDA. A species of beetle, which preys upon the pith of young shoots of sickly or recently-felled Scotch and spruce-firs. It is not very injurious in this country.

HYLOTONIA ROSEÆ. A saw-fly, which injures rose-trees seriously, by puncturing in rows their young shoots, and depositing its eggs in the holes. The best remedy is spreading a cloth beneath the trees in the evening, and killing the insects shaken down upon it.

HYMENÆA. Locust-tree. (From *Hymen*, the god of marriage; referring to the leaflets being joined. Nat. ord., *Leguminous Plants* [*Fabaceæ*]. Linn., 10-*Decandria* 1-*Monogynia*. Allied to *Bauhinia*.)

Fine, close-grained, hard wood; and the resins Anime and Copal are produced by these stove evergreen trees. Cuttings of firm young shoots in spring, inserted firmly in sand, covered with a bell-glass, in bottom-heat; peat and rich loam. Summer temp., 60° to 85°; winter, 55° to 60°.

H. Candollia'na (Decandolle's). 30. White. Acalpulco. 1824.

— *Courbaril* (Courbaril). 40. Yellow, purple. W. Ind. 1688.

— *verrucosa* (warty-podded). 20. White. Madagascar. 1808.

HYMENANTHE'RA. (From *hymen*, a membrane, and *anthera*, an anther, or pollen-bag. Nat. ord., *Violetworts* [*Violaceæ*]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Alsodeia*.)

Greenhouse evergreen shrub. Cuttings of young shoots, getting a little firm, in spring, in sand, over peat, and well drained, under a bell-glass; sandy peat, with a third of fibry loam. Winter temp., 40° to 45°.

H. denta'ta (toothed-leaved). 6. Yellow. May. N. Holland. 1824.

HYMENOCALLIS. (From *hymen*, a membrane, and *kalos*, beautiful; referring to the membranous cup inside the flower. Nat. ord., *Amaryllids* [*Amaryllidaceæ*]. Linn., 6-*Hexandria* 1-*Monogynia*. Allied to *Pancratium*.)

They have all white flowers, and much resemble *Pancratiums*. Their seeds differ in being large and green, the seeds of *Pancratium* having a black, brittle skin. Offsets; rich, sandy loam. See **AMARYLLIS**.

HARDY BULBS.

- H. adnata* (adhering-leaved). May. S. Amer. 1758.
 — *acutifolia* (pointed-leaved). May. Mexico. 1824.
 — *litoralis* (sea-shore). May. S. Amer. 1758.
 — *Dryadnari* (Dryander's). 2. May.
 — *rotata* (wheel-crowned). 1. August. Mobile. 1803.
 — *Staplesii* (Staples's). June. Mexico. 1826.

GREENHOUSE BULBS.

- H. bistubata* (double-tubed). 1½. April. Mexico. 1844.
 — *Caroliniana* (Carolina). 2. June. Carolina. 1759.
 — *Panamenis* (Panama). May. Panama. 1844.
 — *Skinneriana* (Skinner's). March. Guatimala. 1843.

STOVE BULBS.

- H. amœna* (handsome). 1. August. Guiana. 1790.
 — *ovata* (egg-leaved). 1. August. W. Ind.
 — *angustata* (narrow-leaved). 1½. July. S. Amer.
 — *Caribæa* (Caribbean). 1½. July. W. Ind. 1730.
 — *Caymanensis* (Cayman). August. Cayman. 1823.
 — *crassifolia* (thick-leaved). 1½. July. S. Amer.
 — *expansa* (expanded). 2. May. W. Ind. 1818.
 — *fragrans* (fragrant). 1. July. W. Ind.
 — *Guianensis* (Guiana). 2. August. Guiana. 1818.
 — *Harrisiana* (Harris's). June. Mexico. 1838.
 — *Mexicana* (Mexican). 1. August. Mexico. 1732.
 — *ovalifolia* (oval-leaved). June. S. Amer. 1820.
 — *patens* (spreading). 2. July. W. Ind. 1822.
 — *pedalis* (long-leaf-stalked). May. Brazil. 1815.
 — *pedicellate* (long-flower-stalked). 3. August. Brazil. 1820.
 — *speciosa* (showy). 1½. July. W. Ind. 1759.
 — *tenuiflora* (thin-flowered). August.
 — *undulata* (wavy-leaved). 1. July. S. Amer.

HYMENODICTYON. (From *hymen*, a membrane, and *diktyon*, a net; the envelope of the seeds being a net like membrane. Nat. ord., *Cinchonads* [*Cinchonaceæ*]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Luculia*.)

Stove evergreen trees, from the East Indies, with greenish-yellow flowers. For culture, see **CINCHONA**.

- H. excelsum* (tall). 30. July. 1820.
 — *thyrsiflorum* (thyrses-flowered). 15. June. 1819.

HYMENOPHYLLUM. Filmy-leaf Fern. (From *hymen*, a membrane, and *phyllon*, a leaf. Nat. ord., *Polypods* [*Polypodiaceæ*]. Linn., 24-*Cryptogamia* 1-*Filices*.)

Ferns, all with brownish-yellow spores, except where otherwise mentioned. By spores, and

dividing the roots; peat and loam; should be rather cramped for room. See **FERNS**.

HARDY.

- H. Tunbridgeense* (Tunbridge). ½. Brown. June. Britain.
 — *Wilsoni* (Wilson's). ½. Brown. June. Britain.

GREENHOUSE.

- H. dilatatum* (swollen). August. New Zealand.
 — *flexuosum* (zigzag). April. New Zealand.
 — *nitens* (shining). May. New Zealand.
 — *sanguinolentum* (bloody). May. New Zealand.

STOVE.

- H. bivalve* (two-valved). May. Isle of Luzon.
 — *finbriatum* (fringed). April. Isle of Luzon.
 — *hirsutum* (hairy). May. Trinidad. 1823.
 — *polyanthum* (many-flowered). W. Ind. 1824.

HYOSCYAMUS. Henbane. (From *hyos*, a hog, and *kyamos*, a bean; fruit eaten by swine. Nat. ord., *Nightshades* [*Solanaceæ*]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Datura*.)

The annual, by seed in the open, dry border, towards the end of March; the shrubby kinds, by cuttings under a bell-glass, in April; or under a hand-light in a shady place, in summer. Sandy, fibry loam, and a little leaf-mould; when planted out of doors, young plants must be reared for saving through the winter in a cold pit or greenhouse. There are many other species besides the following; but they are mere weeds.

- H. Camerarii* (Camerarius's). Yellow, purple. July. South Europe. Hardy annual.
 — *Canariensis* (Canary). 1½. Yellow. December. Canaries. 1816. Greenhouse evergreen.
 — *datura* (datura). 1½. Yellow. May. Egypt. 1829. Half-hardy evergreen.

HYPECOUM. (From *hypecheo*, to rat-tle; referring to the seeds in the pods. Nat. ord., *Fumeworts* [*Fumariaceæ*]. Linn., 4-*Tetrandria* 2-*Digynia*.)

Hardy annuals, with yellow flowers. Seeds in the open border, in March.

- H. erectum* (erect). ½. May. Siberia. 1759.
 — *pendulum* (hanging-down). ½. June. South France. 1640.
 — *procumbens* (lying-down). 1. July. South Europe. 1596.

HYPERICUM. St. John's Wort. (The *Yperikon* of Dioscorides; said to be from *yper*, on account of, and *ereike*, heath; from its growing in similar places. Nat. ord., *Tutsans* [*Hypericaceæ*]. Linn., 18-*Polyadelphia* 2-*Polyandria*.)

All yellow-flowered, except where otherwise mentioned. The hardier ones flourish in common and sandy loam, and the more tender in loam and peat. Annuals, sow in the open border, in March; herbaceous, sow, and divide the plants in spring; shrubs are easily divided, as they stole freely, and also by seeds; greenhouse and frame kinds, by divisions, but chiefly by cuttings of young shoots in sand, under glass; most of them, if protected in winter, would grow against a wall. For exposed places the following are the best shrubby ones:—*Elatior*, *hircinum*, *calycinum*, *Kalmianum*, and *prolificum*.

HARDY BIENNIAL.

H. simplex (simple). 1. July. N. Amer. 1826.

GREENHOUSE EVERGREEN SHRUBS, &c.

H. Ægyptiacum (Egyptian). 2. June. Egypt. 1787.

— *Æthiopicum* (Ethiopian). 1. July. Cape of Good Hope. 1817.

— *Baleaticum* (Balearic). 1½. May. Majorca. 1774.

— *Canariense* (Canary). 2. August. Canaries. 1699.

— *Chinense* (Chinese). 3. June. China. 1753.

— *Cochin-Chinense* (Cochin-Chinese). 3. Red. July. China. 1821.

— *cordifolium* (heart-leaved). 2. Nepaul. 1825. Half-hardy.

— *coris* (coris-leaved). 1. June. Levant. 1640. Half-hardy.

— *empetrifolium* (empetrum-leaved). 1. July. South Europe. 1820. Half-hardy.

— *ericoides* (heath-like). 1. June. Spain. 1821. Half-hardy.

— *floribundum* (bundle-flowered). 3. June. Madeira. 1779. Deciduous.

— *foliosum* (shining-leafy). 3. August. Azores. 1778.

— *glandulosum* (glanded). 2. June. Madeira. 1777.

— *grandiflorum* (large-flowered). 3. July. Teneriffe. 1718.

— *heterophyllum* (various-leaved). 2. July. Persia. 1812.

— *oblongifolium* (oblong-leaved). 1. June. Nepaul. 1823.

HARDY DECIDUOUS AND EVERGREEN SHRUBS.

H. axillare (axillary-flowered). 2. July. Georgia. Evergreen.

— *calycinum* (large-calvexed). 1. July. Ireland.

— *elatum* (tall). 5. July. N. Amer. 1762.

— *fasciculatum* (fascicled). 1. July. Carolina. 1811.

— *frondosum* (leafy). 5. July. N. Amer. 1806.

— *galioides* (galium-like-leaved). 2. August. N. Amer. Evergreen.

— *Gebleri* (Gebler's). July. Altai. 1829.

— *glaucum* (milky-green). 1½. August. N. Amer. 1812.

— *hirtum* (goat-scented). 3. August. South Europe. 1640.

— *minus* (smaller). 2. August. South Europe.

— *Kalmianum* (Kalm's). 2. June. N. Amer. 1759.

— *nummularium* (moneywort-leaved). 1. June. South Europe. 1823. Trailer.

— *Olympicum* (Olympian). 4. August. Levant. 1706. Evergreen.

— *patulum* (spreading). 1. June. Nepaul. 1823. Evergreen.

— *prolificum* (prolific). 4. July. N. Amer. 1758.

— *punctatum* (dotted). 1½. June. N. Amer. 1823.

— *rosmarinifolium* (rosemary-leaved). 2. July. Carolina. 1812.

— *serpyllifolium* (thyme-leaved). ½. July. Levant. 1688. Evergreen.

— *Uralium* (Urala). 1. July. Nepaul. 1823.

HARDY HERBACEOUS PERENNIALS.

H. amœnum (pleasing). 4. July. Carolina. 1802.

— *angulosum* (angled-tooth-flowered). 2. June. N. Amer. 1812.

— *ascyron* (*St. Peter's-wort*). 2. June. Siberia. 1774.

— *ascyroides* (ascyron-like). 2. June. N. Amer. 1812.

H. attenuatum (thin-leaved). 1½. July. Dahuria. 1822.

— *barbatum* (bearded). 2. July. Scotland.

— *Calabriticum* (Calabrian). 1½. August. Calabria. 1816.

— *Canadense* (Canadian). 1. August. N. Amer. 1770.

— *ciliatum* (hair-fringed-flowered). 2. July. Levant. 1739.

— *crispum* (curly-leaved). 1. July. Greece. 1688.

— *dentatum* (toothed). 2. August. Mediterranean. 1820.

— *dolabriforme* (hatched-formed). 2. June. N. Amer. 1821.

— *elegantum* (elegant). 1½. June. Siberia. 1822.

— *fimbriatum* (fringed). 2. July. Pyrenees. 1821.

— *hyssopifolium* (hyssop-leaved). 1. July. South Europe. 1823.

— *involutum* (rolled-inward-flowered). 1. July. N. S. Wales. 1822. Half-hardy.

— *Japonicum* (Japanese). 1½. July. Nepaul. 1823.

— *macrocarpum* (large-podded). August. N. Amer. 1828.

— *montanum* (mountain). 1½. July. Britain.

— *myrtifolium* (myrtle-leaved). 1. July. N. Amer. 1818.

— *Nepalense* (Nepaul). 1½. September. Nepaul. 1826.

— *nudiflorum* (naked-flowered). 1½. July. N. Amer. 1811.

— *perfoliatum* (stem-pierced-leaved). 1. July. Italy. 1785.

— *angustifolium* (narrow-leaved). 1½. July. Britain.

— *perforatum* (perforated). 1½. July. Britain.

— *procumbens* (lying-down). ½. August. N. Amer. 1822.

— *pusillum* (small). ½. July. N. S. Wales. 1818. Half hardy.

— *pyramidalum* (pyramidal). 2. July. Canada. 1759.

— *quadrangulum* (square-stalked). 1½. July. Britain.

— *quinquenervium* (five-nerved). 1. July. N. Amer. 1759.

— *tomentosum* (woolly). 1. August. South Europe. 1648.

— *triplinerve* (three-nerved). 1½. July. N. Amer. 1821.

— *virgatum* (twiggy). 1½. July. N. Amer. 1820.

— *Virginicum* (Virginian). 1½. August. N. Amer. 1800.

HYPHÆNE. (From *hyp̄haino*, to entwine; referring to the fibres of the fruit.

Nat. ord., *Palms* [Palmaeæ]. Linn., 22-*Diæcia* 6-*Hexandria*. Allied to *Latania*.)

This is the Doom Palm, and the Gingerbread-tree of Egypt, the bark having the appearance of that cake. Stove palm. Seeds; rich, sandy loam.

H. coriacea (leather-leaved). 20. Egypt. 1824.

HYPOCALY'MMA. (From *hypo*, under, and *calymma*, a veil; referring to the calyx falling off like a veil or cape, on account of the cohesion of the points, or apex.

Nat. ord., *Myrtleblooms* [Myrtaceæ]. Linn., 12-*Icosandria* 1-*Monogynia*.)

Greenhouse evergreen shrubs, from Australia. Cuttings of young shoots in sand, under a bell-glass; loam and peat, with a little silver sand and pieces of charcoal. Winter temp., 40° to 45°.

H. angustifolium (narrow-leaved). 2. White. May. 1843.

— *robustum* (robust). 1. Rose. May. 1843.

— *sud've* (sweet-scented). Purple. May. 1844.

HYPOCALYPTUS. (From *hypo*, under, and *kalypto*, to veil; referring to the two bractelets under the flower. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 16-*Monadelphica* 4-*Decandria*. Allied to *Loddi-gesia*.)

A very old evergreen greenhouse plant, once called a *Crotolaria*, and one of the best of that section. Cuttings of young side-shoots in April, in sand, under a bell-glass; peat and loam. Winter temp., 40° to 45°.

H. obcordatus (reversed-egg-leaved). 1½. Purple. June. Cape of Good Hope. 1823.

HYPODERIS. (From *hypo*, under, and *derris*, a skin. Nat. ord., *Polypods* [Polypodiaceæ]. Linn., 24-*Cryptogamia* 1-*Filices*.)

A stove Fern. See **FERNs**.

H. Brownii (Brown's). 2. Brown. May. Trinidad.

HYPOESTES. (From *hypo*, under, and *estes*, covering; referring to the bractes covering the calyx. Nat. ord., *Acanthads* [Acanthaceæ]. Linn., 2-*Diandria* 1-*Monogynia*. Allied to *Dicliptera*.)

Stove plants. Cuttings of young shoots in sandy soil, under a glass, in heat; peat and loam. Summer temp., 60° to 85°; winter, 48° to 55°.

DECIDUOUS.

H. Cochinchinensis (Cochin-China). White. July. China. Climber.

— *purpurea* (purple). 2. Purple. May. China. 1822. Herbaceous.

EVERGREEN.

H. fastuosa (sumptuous). 2. Red. June. E. Ind. 1818.

— *involuta* (involucrated). 1½. White. July. E. Ind. 1811.

— *serpens* (creeping). ½. July. Australia. 1820.

HYPOLEPIS. (From *hypo*, under, and *lepis*, a scale. Nat. ord., *Polypoas* [Polypodiaceæ]. Linn., 24-*Cryptogamia* 1-*Filices*.)

Ferns, with brown spores. The first two require the stove, and the others a warm greenhouse. See **FERNs**.

H. aculeata (sharp-pointed). August. Jamaica.

— *repens* (creeping). 5. August. W. Ind. 1824.

— *rugulosa* (rather-rough). September. Van Diemen's Land. 1844.

— *tenuifolia* (slender-leaved). June. N. S. Wales. 1824.

HYPOXIS. (From *hypo*, beneath, and *oxys*, sharp; referring to the seed-pod. Nat. ord., *Hypoxids* [Hypoxidaceæ]. Linn., 6-*Hexandria* 1-*Monogynia*.)

Very pretty little bulbs, with the bulb solid, from the Cape of Good Hope, and with yellow flowers, except where otherwise mentioned. They are little known either to botanists or gardeners. Division of the plant in spring, and division of the roots; peat and loam. Temperature, according

as the species is hardy, or requiring the greenhouse or stove.

HARDY.

H. erecta (upright). ½. June. N. Amer. 1752.

— *serrata* (saw-leaved). 1. June. 1788.

— *veratrifolia* (veratrum-leaved). 2. June. 1778.

STOVE.

H. gracilis (slender). ½. July. Mexico. 1829.

— *Sellowii* (Sellow's). June. Buenos Ayres. 1827.

GREENHOUSE.

H. Carolineensis (Carolina). ½. June. Carolina. 1822.

— *elegans* (elegant). ¾. White, blue. May. 1752.

— *latifolia* (broad-leaved). Yellow. Natal. 1854.

— *obliqua* (odd-sided-leaved). ½. July. 1795.

— *obtusata* (blunt). ½. June. 1816.

— *pratensis* (meadow). ½. April. N. Holland. 1824.

— *ramosa* (branchy-stemmed). ½. June. 1828.

— *sabotifera* (shoot-bearing). ½. August. 1774.

— *stellata* (star-flowered). ¾. White, blue. May. 1752.

— *villosa* (shaggy). ¾. June. 1774.

HYSSOPUS. *Hyssop.* (*Yssopus* of Dioscorides, but certainly not the same plant. Nat. ord., *Lipworts* [Lamiaceæ]. Linn., 14-*Didynamia* 1-*Gymnospermia*.)

Hardy, blue-flowered evergreens. Sow in March or April; propagate by dividing the plant at the same time, or in September; also, by stout cuttings at a similar period; the varieties are propagated by cuttings, and, if rare, require a hand-light over them; dry, light soil. The plant is not only aromatic, but the flowers are beautiful.

H. discolor (two-coloured). June. Siberia. 1818.

— *officinalis* (common. Shop). 2. June. South Europe. 1548.

— *angustifolius* (narrow-leaved). July. Caucasus.

— *cane-scens* (hoary). June. Switzerland. 1819.

— *florere rubro* (red-flowered). 2. Red. July. Gardens.

— *variegatus* (variegated-leaved). 1½. July. Gardens.

— *septemcrenatus* (seven-scolloped). June. Egypt. 1829.

— *septemfidus* (seven-cleft). June. Egypt. 1827.

I.

IBERIS. Candy Tuft. (From *Iberia*, the ancient name of Spain, where the species abounds. Nat. ord., *Crucifers* [Brassicaceæ]. Linn., 15-*Tetradynamia*. Allied to *Thlaspi*.)

All white-flowered, except where otherwise specified. Annuals and biennials, by seeds in March and April; most of the annuals, and especially the *umbellata* group, are very hardy, and if sown in autumn will generally stand the winter and bloom in April and May in consequence. The shrubby evergreen group, by seeds, but chiefly by cuttings after flowering, under a hand-light, in a shady corner, in summer. *I. sempervirens* may be taken as a type of this group, and whether in a clump, by the side of borders, or hanging over knolls and rock-works, its masses of white flowers are really beautiful.

HARDY ANNUALS AND BIENNIALS.

I. ciliata (hair-fringed-leaved). ¾. June. Provence. 1802. Biennial.

- I. corona'ria* (crown-flowering). 1. July. 1836.
 — *intermedia* (intermediate). 1. June. France. 1823. Biennial.
 — *odora'ta* (sweet-scented). 1. June. Crete. 1806.
 — *Tau'rica* (Taurian). 3. May. Caucasus. 1802. Biennial.
 — *umbella'ta* (umbelled). 1. Purple. June. South Europe. 1596.
 — *viola'cea* (violet). 3. Purple. June. 1782.
 — *Virgi'nica* (Virginian). 3. May. N. Amer. 1836.

GREENHOUSE EVERGREEN.

- I. Gibralt'rica* (Gibraltar). 1. Whitish-pink. May. Gibraltar. 1732.

HARDY EVERGREENS.

- I. conferta* (crowded). 4. June. Spain. 1827.
 — *contra'cta* (contracted). 4. May. Spain. 1824.
 — *corifo'lia* (coris-leaved). 4. June. South Europe. 1739.
 — *Garzeia'na* (Garrex's). 4. May. Piedmont. 1820.
 — *pube'scens* (downy). 4. Pale violet. June.
 — *pu'mila* (dwarf). May. Sicily. 1828.
 — *saxa'tilis* (rock). 3. May. South Europe. 1739.
 — *semperflo'rens* (ever-flowering). 14. May. Sicily. 1679.
 — *sempervi'rens* (evergreen). 3. May. Candia. 1731.

HARDY HERBACEOUS.

- I. Tenorea'na* (Tenore's). 4. Pale purple. June. Naples. 1802.

ICE. Mr. Beaton finds that the cheapest and most effectual mode of preserving this is in what he terms an *Iceberg*, and it is thus constructed:—Choose a natural hollow for the sight of the iceberg, where the bank on one side is steep, and let the outside of the cone, when it is finished, be at six feet from the bottom of the bank. Some such space is necessary between the bank and the ice, to get rid of any rain or snow water that may run down the bank before it gets to the ice. At the bottom of the bank, and half way up, pots are to be let into the ground in pairs, four feet apart, and braced together with a strong piece of timber set across, as builders do their scaffolding; let planks for wheeling on be made into a long trough, inclining from the top of the bank, and resting on those cross pieces; the bottom of the trough being carried out to near the intended centre of the cone, and far above it; and the ice should be broken on a platform of boards at the top of the bank, and poured down the inclined trough. The broken ice should be spread a little by some one as it falls from the spout, care being taken that the cone is brought up regularly; and when the ice reaches the height of the bottom of the spout, the planks are to be re-arranged, so as to allow room for throwing off the ice as fast as it comes down; and, finally, when the cone is finished into a sharp point, the whole must be left till the *first*

frost after mild or thawing weather. The outside of the iceberg has then melted a little; but on the first hard frosty night the whole is frozen over again, and the outside of the cone is then as if it were one solid face of rugged ice; and now is the time to thatch it entirely over with good long straw, about the same thickness as you would a wheat or barley stack, and no more, *provided* you have cheaper materials to give it a good thick covering afterwards. At Shrubland Park they use large quantities of leaves, and nothing else, over the straw; these are thrown on at intervals, so that the leaves do not heat by putting too many on at once. The depth of covering over the straw is sometimes twice as much as in other seasons, according to the quantity of leaves on hand; but two feet in thickness does not preserve the ice better than one foot. The ice is never uncovered by high winds blowing off the leaves, though nothing is put upon them to keep them down.

Perfect exemption from wet or damp is necessary for the bottom of an iceberg; and a few pieces of rough wood, put upon such a place, and covered with brushwood about a foot, and that again covered with six inches of straw, is sufficient. The brushwood and straw are soon compressed into a few inches by the weight of the ice; and as the ice melts, the water passes through, without hinderance, into cross, open drains at the bottom. When ice is required, the thatch is opened at the bottom, each time, the ice cut out with a pickaxe, and the thatch replaced.

If an *Ice-house* is built, Mr. Cobbett's plan, as follows, is the best:—Fig. 1 *a* is the

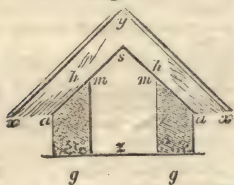
Fig. 1.

centre of a circle, the diameter of which is ten feet, and at this centre you put up a post to stand fifteen feet above the level of the ground, which post ought to be about ten inches through at the bottom, and not much smaller at the top. Great care must be taken that this post be perfectly perpendicular, for if not, the whole building will be awry; *b b* are fifteen posts, nine feet high, and six inches through at the bottom, without much tapering towards the top. These posts stand about two feet apart, reckoning



from centre of post to centre of post, which leaves between each two a space of eighteen inches; *c c c* are fifty-four posts, five feet high, and five inches through at the bottom, without much tapering towards the top. These posts stand about two feet apart from centre of post to centre of post, which leaves between each two a space of nineteen inches. The space between these two rows of post is about four feet in width and is to contain a wall of straw; *e* is a passage through this wall; *d* is the outside door of the passage; *f* is the inside door; and the inner circle, of which *a* is the centre, is the place in which the ice is to be deposited. The wall is to be made of straw, wheat straw, or rye straw, with no rubbish in it, and made very smooth by the hand as it is put in. Lay it in very closely and very smoothly, so that if the wall were cut across, as a

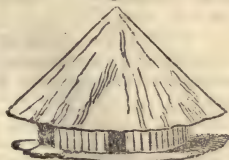
Fig. 2.



g g in Fig.² (which Fig. 2 represents the whole building cut down through the middle, omitting the centre post), the ends of the straw would present a compact wall. It requires something to keep the straw from *bulging* out between the posts; little stakes as big as your wrist will answer this purpose. Drive them into the ground, and fasten at the top to the plates, which are pieces of wood that go all round both the circles, and are nailed upon the tops of the posts. Their main business is to receive and sustain the lower ends of the rafters, as at *mm* and *nn* in Fig. 2. From *s* to *m* there need be only about half as many as from *m* to *n*. The roof is forty-five degrees pitch, as the carpenters call it. If it were even sharper it would be none the worse. There will be about thirty ends of rafters to lodge on the plate as at *m*, and these cannot all be fastened to the top of the centre post rising up from *a*. The plate which goes along on the tops of the row of posts, *b b b*, must be put on in a somewhat sloping form.

otherwise there would be a sort of hip formed by the rafters. The best way to put on such deep thatch is to have a strong man to tie for the thatcher. The

Fig. 3.



thatch is to be of clean, sound, and well-prepared wheat or rye straw, four feet thick, as at *h h* in Fig. 2. The bed for the ice is the circle of which *a* is the centre. Begin by laying on the ground round logs, eight inches through or thereabouts, and placing them across the area leaving spaces between them of about a foot. Then, crossways on these, poles about four inches through, placed at six inches apart. Then, crossways on them, rods as thick as your finger, placed at an inch apart. Then, again, small, clean, dry, last winter-cut twigs, to the thickness of about two inches, or, instead of these twigs, good, clean, strong rushes, free from grass and moss, and from rubbish of all sorts. Upon this bed the ice is put, broken, and beaten down together in the usual manner. As we have seen, there is a passage, *e*; two feet wide is enough for this passage, so that you may have two doors, and the inner door open. This inner door may be of hurdle-work and straw, and covered on one of the sides with sheep-skins with the wool on, so as to keep out the external air. The outer door, which must lock, must be of wood, made to shut very closely, and covered, besides, with skins like the other. At times of great danger from heat or from wet, the whole of the passage may be filled with straw. The door, Fig. 3, should face the north, or between north and east. As to the size of the ice-house, that must of course depend upon the quantity of ice that you may choose to have. A cubic foot of ice will, when broken up, fill much more than a Winchester bushel.

ICE-PLANT. *Mesembrya'nthemum crys-*
talli'num.

ICHNOCA'RPUS. (From *ichnos*, a vestige, and *karpos*, a fruit; in reference to the slender seed-vessels. Nat. ord., *Dogbanes*

[Apocynaceæ]. Linn., 5-Pentandria 1-Monogynia. Allied to Apocynum.)

Stove evergreen twiner. Cuttings of small side-shoots in April, in sand, and in heat. Summer temp., 60° to 80°; winter, 50°; peat and loam.

I. frutescens (shrubby). 10. Purple. July. E. Ind. 1759.

I'CICA. (The native name in Guiana. Nat. ord., *Amyrids* [Amyridaceæ]. Linn., 10-Decandria 1-Monogynia. Allied to Bursera.)

Stove evergreen balsam, producing trees with white flowers, and all but one natives of Guiana. Cuttings of ripened young shoots in strong heat, in sand, and under a bell-glass; peat and loam. Summer temp., 60° to 80°; winter, 50° to 55°.

I. altissima (highest). 100. 1822.
— *decaandra* (ten-stamened). 40. 1825.
— *enneandra* (nine-stamened). 20. 1822.
— *Guianensis* (Guiana). 50. 1823.
— *heterophylla* (various-leaved). 30. 1826.
— *Tacamuhuca* (Tacamahac). 30. Trinidad. 1819.

I'LEX. The Holly. (From the resemblance of the leaves to the *Ilex* of Virgil, *Que'rcus i'lex*. Nat. ord., *Hollyworts* [Aquifoliaceæ]. Linn., 4-Tetrandria 3-Tetragynia.)

All white-flowered but one. By seed, which should be kept in the rot-heap for a twelvemonth after gathering, frequently turned in the mean time, to rot the pulp, and then sown in beds. The varieties by grafting and budding—the first in March, and the second in July; by cuttings of the ripened summer shoots in autumn, on a north border, and covered with hand-glasses; soil, sandy loam, in any place free from stagnant water. See **HOLLY**.

GREENHOUSE EVERGREENS.

I. angustifolia (narrow-leaved). 5. May. Carolina. 1806.
— *Chinensis* (Chinese). 10. July. China. 1814.
— *Magellanica* (Magellan). Magellan. 1838.
Half-hardy.
— *Pera'do* (Pera'do). 10. Pink. May. Madeira. 1760.
— *serrata* (saw-edged-leaved). Japan. 1840.

STOVE EVERGREENS.

I. myrtifolia (myrtle-leaved). 6. July. W. Ind. 1806.
— *Paraguayensis* (Paraguay Tea). 15. Paraguay. 1823.
— *salicifolia* (willow-leaved). 5. May. Mauritius. 1818.

HARDY EVERGREENS.

I. aquifolium (prickly-leaved. *Common*). 20. May. Britain.
— *albomarginatum* (white-edged). 12. May. Britain.
— *albopictum* (white-painted. *Milkmaid*). 20. April. Britain.
— *Atticlare'nsis* (High-Clere). 20. April. Britain.
— *angustifolium* (narrow-leaved). 20. May. Britain.
— *au'reo marginatum* (gold-edged). 12. May. Britain.
— *au'reo pictum* (gold-spotted-leaved). 20. May. Britain.

I. aquifolium ciliatum (hair-fringed-leaved). 20. May. Britain.

— *ciliatum minus* (small-hair-fringed-leaved). 20. May. Britain.

— *crassifolium* (thick-leaved). 20. May. Britain.

— *crispum* (curled-leaved). 20. May. Britain.

— *ferox* (fierce. *Hedgehog*). 12. May. Britain.

— *ferox argenteum* (silvery-fierce). 20. May. Britain.

— *ferox aureum* (golden-fierce). May. Britain.

— *flavum* (yellow). 15. May. Britain.

— *fructu albo* (white-berried). 20. May. Britain.

— *fructu luteo* (yellow-berried). 20. May. Britain.

— *fructu nigro* (black-berried). 20. May. Britain.

— *heterophyllum* (various-leaved). 20. May. Britain.

— *latifolium* (broad-leaved). 20. May. Britain.

— *laurifolium* (laurel-leaved). 20. May. Britain.

— *marginatum* (thick-margined-leaved). 20. May. Britain.

— *medio pictum* (middle-painted). 10. May. Britain.

— *platyphyllum* (broad-leaved). May. Europe. 1844.

— *recurvum* (bent-back-leaved). 20. May. Britain.

— *senescens* (aged-spineless). 20. May. Britain.

— *serratifolium* (saw-edged-leaved). 20. May. Britain.

— *Balearica* (Balearic). 10. May. Minorca. 1815.

— *Canariensis* (Canary Island). 16. May. Canaries. 1820.

— *cassine* (cassine). 12. August. Carolina. 1700.

— *Dahoon* (Dahoon). 6. May. Carolina. 1726.

— *dipyrena* (two-seeded). 12. May. North India. 1840.

— *latifolia* (broad-leaved). 20. Japan. 1840.

— *luxiflora* (loose-flowered). 20. May. Carolina. 1811.

— *opa'ca* (opaque). 30. May. Carolina. 1744.

— *recurva* (bent-back). 6. May.

— *vomitaria* (emetic). 10. July. Florida. 1700.

ILLE'CEBRUM. Knot Grass. (From *illecebra*, a charmer; referring to the pretty little annuals giving a charm to waste places. Nat. ord., *Knotworts* [Illecebraceæ]. Linn., 5-Pentandria 1-Monogynia.)

All white-flowered, and all propagated by seed; common soil, though *verticillatum* likes a little moist peat. The greenhouse and stove perennials merely require the extra heat, and may also be propagated by division in the spring.

I. diffusum (spreading). 1. June. Trinidad. 1817. Greenhouse herbaceous perennial.

— *glomeratum* (clustered). 4. June. Brazil. 1820. Stove herbaceous perennial.

— *gompreno'ides* (gomprena-like). 4. June. Peru. 1810. Stove annual.

— *verticillatum* (whorled). 4. July. England. Hardy trailing annual.

ILL'CIUM. Aniseed-tree. (From *illicio*,

to allure; referring to the perfume. Nat. ord., *Magnoliads* [Magnoliaceæ]. Linn., 13-*Polyandria* 6-*Polygynia*. Allied to *Drimys*.)

The fruit of *anisa'tum* has the flavour of anise, being used as a spice in Chinese cookery; and the seed of *religio'sum* is burnt as incense in their temples. Half-hardy evergreen shrubs. Cuttings of the young ripened shoots in sand, under a glass, in summer; by layers, from a stool in a cold pit, where they generally remain two years before being removed; sandy loam and peat; require the protection of the cold pit or greenhouse in winter, though *Florida'num* has stood out in many places with but a slight protection in severe weather.

- I. anisa'tum* (anise-scented). 6. Red. May. Japan. 1790.
— Florida'num (red. Florida). 3. Red. May. Florida. 1766.
— parviflo'rum (small-flowered). 6. Yellow. May. Florida. 1790.
— religio'sum (holy). 4. Yellow, green. March. Japan. 1842.

ILLUPE-TREE. *Ba'ssia*.

IMANTOPHYLLUM. (From *imas*, a leather thong, and *phyllon*, a leaf; alluding to shape and substance of the foliage. Nat. ord., *Amaryllids* [Amaryllidaceæ]. Linn., 6-*Hendria* 1-*Monogynia*.)

A greenhouse bulb. For culture, see *CLIVIA*. We think *Clivia no'bilis* should be here included as *Imantophyllum Aito'ni*.

- I. minia'tum* (brick-coloured). 1. Red. February. Natal. 1854.

IMBRICA'RIA. (From *imbrico*, to cover like tiles on a roof; referring to the divisions of the calyx. Nat. ord., *Sapotads* [Sapotaceæ]. Linn., 8-*Octandria* 1-*Monogynia*. Allied to *Mimusops*.)

Stove trees, which produce fruit similar to an orange. Cuttings of ripe shoots in sand, under a glass, in strong, moist heat; sandy loam and peat. *I. Borbo'nica* (Bourbon). White. Isle of Bourbon. 1820.

IMBRICATED. Leaves, sepals, &c., are said to be imbricated when one laps over the next, and so in succession, like the tiles of a house, as in the leaves of the common Heath, or Ling, *Eri'ca vulga'ris*.

IMPA'TIENS. Balsam. (From *impatiens*; referring to the elasticity of the valves of the seed-pod, which discharge the seeds when ripe, or when touched. Nat. ord., *Balsams* [Balsamaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*.)

Hardy annuals and biennials, by seed in the open border, in April. *Scapiflo'ra*, a bulb, requires stove heat, and to be kept almost dry in winter. Greenhouse annuals and biennials merely require to be sown in a hotbed in March, and planted out as half-hardy and tender annuals. All these may be kept over the winter by taking off cuttings in the beginning of autumn, which would bloom in the house early in the spring. See *BALSAMS*.

HARDY ANNUALS.

- I. biflo'ra* (two-flowered). Orange. June. N. Amer.
— cristata (crested). 2. Yellow. August. China. 1827.
— discolor (various-coloured). 1. Yellow. August. Nepaul. 1820.
— fulva (yellow). 3. Dark yellow. June. N. Amer. Aquatic.
— macrochi'la (long-lipped). 8. Pale purple. August. India. 1839.

STOVE ANNUALS AND BIENNIALS.

- I. ca'ndida* (white). 6. White. May. Himalayas. 1839. Biennial.
— coccine'a (scarlet). 2. Scarlet. August. E. Ind. 1808.
— cornu'ta (horned). 2. Red. August. Ceylon. 1826.
— Hookeri'na (Hooker's). 2½. White. Ceylon. 1852.
— fascicu'la'ta (fascicle-flowered). 2. Pink. July. Ceylon. 1851.
— hortensis (common. Garden). 3. Red. September. E. Ind. 1596.
— latifolia (broad-leaved). 1. Pale red. August. E. Ind. 1818.
— longico'rnu (long-horned). May. E. Ind.
— natans (floating). 2. Red. July. E. Ind. 1810.
— macrophy'la (long-leaved. Ceylon). 2½. Red and orange. Ceylon.
— Mastersi'na (Mr. Masters's). 1. Purple. July. Khoo'sea Hills. 1837.
— picta (painted). 2. Pink. June. E. Ind. 1837. Biennial.
— platyph'e'tala (broad-petaled). 1½. Rose. June. India. 1844.
— pulche'rri'ma (handsome). 1½. Purple. July. Bombay. 1850.
— repens (creeping). 1½. Yellow. June. Ceylon. 1848.
— scapiflo'ra (scape-flowered). 2. Lilac. August. E. Ind. 1835. Bulb.
— trico'rnis (three-horned). 6. Yellow-spotted. June. India. 1839.

GREENHOUSE ANNUALS.

- I. bi'fida* (two-cleft). ½. Red. August. Japan. 1830.
— Cape'nsis (Cape). ½. Red. August. Cape of Good Hope. 1818.
— Chine'nsis (China). 1. Purple. August. China. 1824.
— glanduli'fera (gland-bearing). 12. Purple. August. India. 1839.
— Jerdo'nie (Mrs. Jerdon's). 2. Green, red, and yellow. June. Neilgherries. 1852.
— Madagascari'e'nsis (Madagascar). ½. Red. August. Madagascar. 1820.
— mi'nor (smaller). ½. Red. August. E. Ind. 1817.
— Mysore'nsis (Mysore). ½. Red. August. Mysore. 1820.
— rose'a (rose-coloured). 6. Rose. July. Himalayas. 1839.
— triflo'ra (three-flowered). 1. Pale red. August. Ceylon. 1818.
— triph'e'tala (three-petaled). 1. Red. August. Nepaul. 1825.

IMPATIENT. A plant is said to be impatient of heat or cold when it is speedily injured by a slight excess of either one or the other.

IMPREGNATION. No seed ever attains the power of germinating, unless the

pollen from the stamens in the same, or some nearly-allied flower, has reached and impregnated its pistils. In favourable seasons, when genial warmth and gentle winds prevail, impregnation is readily effected by the plant's own provision. The pollen is never shed from the anther of the stamen until the stigma of the pistil is fully developed, and this soon withers after the contact.

Insects aid in effecting this impregnation, and in frames, hothouses, &c., from whence they are almost totally excluded, other artificial means might be adopted with success to render flowers fertile that had hitherto failed in producing seed. Thus the gardener always finds the advantage of using the camel-hair pencil to apply pollen to the stigmas of his forced melons, cherries, and peaches. *See* HYBRIDIZING.

INARCHING, or *Grafting by approach*, differs from grafting only in having the scion still attached to its parent stem whilst the process of union with the stock is proceeding. It is the most certain mode of multiplying an individual that roots or grafts with difficulty, but is attended with the inconvenience that both the stock and the parent of the scion must be neighbours.

Having the stocks properly placed, make the most convenient branches approach the stock, and mark in the body of the branches the parts where they will most easily join to the stock, and in those parts of each branch, pare away the bark and part of the wood two or three inches in length, and in the same manner pare the stock in the proper place for the junction of the graft; then make a slit upward in the branch so as to form a sort of tongue, and make a slit downward in the stock to admit it; let the parts be then joined, slipping the tongue of the graft into the slit of the stock, making the whole join in an exact manner, and tie them closely together with bass, and afterwards cover the whole with a due quantity of clay, or wax. After this let a stout stake be fixed for the support of each graft, and so fastened as to prevent its being disjoined from the stock by the wind.

The operation being performed in spring, let the grafts remain in that position about four months, when they will be united, and they may then be separated from the mother-tree. In doing

this be careful to perform it with a steady hand, so as not to loosen or break out the graft, sloping it off downwards close to the stock; and the head of the stock cut down close to the graft, and all the old clay and bandage cleared away and replaced with new, to remain a few weeks longer. Observe, however, that if the grafts are not firmly united with the stock, let them remain another year till autumn, before you separate the grafts from the parent tree. Instead of approach-grafting in the usual manner, it is sometimes convenient to detach shoots of the kinds to be propagated from the plants on which they grew, and inarch them upon the single plant, leaving a piece at the bottom of each shoot sufficiently long to thrust into a phial, which must be kept constantly supplied with water.

INDIAN BAY. *Laurus Indica*.

INDIAN BLUE. *Nymphaea cyanea*.

INDIAN CRESS. (*Tropaeolum*.) *See* NASTURTIUM.

INDIAN FIG. *Opuntia*.

INDIAN GRASS. *Aruundo*.

INDIAN HAWTHORN. *Raphiolepis*.

INDIAN HEMP. *Apoecynum canna binum*.

INDIAN LOTUS. *Nymphaea lotus*.

INDIAN MULBERRY. *Mori'nda*.

INDIAN PHYSIC. *Magnolia auriculata*.

INDIAN PINK. *Dianthus Chine'nsis*.

INDIAN SHOT. *Ca'na Indica*.

INDIGENOUS. Native, or naturally produced. Thus, the Crab-tree is indigenous to England.

INDIGO-FERA. (From *indigo*, a blue dye, and *fero*, to bear. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 17-*Diadelphia 4-Decandria*.)

Annuals and biennials, in hotbed, in spring, potted and treated as tender and half-hardy annuals; shrubby plants, by cuttings of young shoots, getting firm, in summer, in sand, under a bell-glass, and a little bottom-heat, especially the tropical species; sandy loam and peat, equal parts. Red spider is their chief enemy.

GREENHOUSE HERBACEOUS PERENNIALS.

I. echinata (hedgehog). Red. June. E. Ind. 1824. Stove.

— *procumbens* (lying-down). $\frac{1}{2}$. Blood. June. Cape of Good Hope. 1818.

— *sarmentosa* (twiggy). $\frac{1}{2}$. Purple. July. Cape of Good Hope. 1786.

STOVE ANNUALS.

I. diphyl'la (two-leaved). $\frac{1}{2}$. Purple. July. Africa. 1816.

— *enneaphyl'la* (nine-leaved). 4. Purple. July. E. Ind. 1776. Trailer.

— *glabra* (smooth). 1. Red. July. E. Ind. 1820. Trailer.

- I. glandulosa* (glanded). 1. Purple. July. E. Ind. 1820.
 — *lateritia* (brick-coloured). 1. Purple. Guinea. 1806. Trailer.
 — *Leschenaultii* (Leschenault's). 1. Purple. July. E. Ind. 1820. Greenhouse.
 — *linifolia* (flax-leaved). 1. Red. July. E. Ind. 1792. Trailer.
 — *trifoliata* (three-leaved). $\frac{1}{2}$. Purple. July. E. Ind. 1816.
 — *viscosa* (clammy). 1. Red. May. E. Ind. 1806.

STOVE EVERGREEN SHRUBS.

- I. biflora* (two-flowered). Purple. May. E. Ind. 1826.
 — *caerulea* (sky-blue). Blue. June. E. Ind. 1820.
 — *elliptica* (oval-leaved). Red. July. Bengal. 1820.
 — *fragrans* (fragrant). 1. Purple. July. E. Ind. 1816.
 — *hirsuta* (hairy). $\frac{1}{2}$. Dark purple. July. Guinea. 1823.
 — *leptostachya* (slender-spiked). 3. Purple. June. E. Ind. 1818.
 — *mucronata* (sharp-pointed). Red. July. Jamaica. 1824.
 — *pulchella* (handsome). Red. July. E. Ind. 1823.
 — *tinctoria* (East Indian. Dyer's). 3. Pink. July. E. Ind. 1731.
 — *violacea* (violet-coloured). 5. Pale rose. June. E. Ind. 1819.
 — *virgata* (twiggy). $1\frac{1}{2}$. Purple. June. E. Ind. 1820.

GREENHOUSE EVERGREEN SHRUBS.

- I. alopecuroides* (alopecurus-like). Rose. April. Cape of Good Hope. 1825.
 — *amœna* (pleasing). $1\frac{1}{2}$. Purple. March. Cape of Good Hope. 1774.
 — *angustifolia* (narrow-leaved). 2. Purple. August. Cape of Good Hope. 1774.
 — *argentea* (silver-leaved). 2. Purple. July. E. Ind. 1776.
 — *atro-purpurea* (dark purple). 3. Purple. July. Nepal. 1816.
 — *australis* (southern). 4. Pink. April. N. S. Wales. 1790.
 — *caudicans* (white-leaved). $1\frac{1}{2}$. Red. July. Cape of Good Hope. 1774.
 — *coriacea* (leathery-leaved). 3. Purple. July. Cape of Good Hope. 1774.
 — *cylindrica* (cylindrical). Rose. June. Cape of Good Hope. 1822.
 — *decoïra* (graceful). Pink. July. China. 1840.
 — *divaricata* (straggling). 3. Red. July.
 — *filifolia* (thread-leaved). 1. Purple. August. Cape of Good Hope. 1812.
 — *filiformis* (thread-like). 2. Purple. July. Cape of Good Hope. 1822.
 — *frutescens* (shrubby). 3. Purple. July. Cape of Good Hope. 1822.
 — *ineana* (hoary). 2. Pink. August. Cape of Good Hope. 1812.
 — *lotoides* (lotus-like). 3. Red. July. Cape of Good Hope. 1800.
 — *macrostachya* (large-spiked). Rose. May. China. 1822.
 — *nuda* (naked). 1. Purple. June. Cape of Good Hope. 1820.
 — *rigida* (stiff). 2. Red. July. E. Ind. 1816.
 — *spinosa* (spiny). 1. Purple. June. Arabia. 1820.
 — *sytiatica* (wood). 8. Rosy, lilac. June. N. Holland. 1825.

INGA. (The name in South America.)

Nat. ord., *Leguminous Plants* [Fabacæ]. Linn., 23-Polygamia 1-Monœcia. Allied to Acacia.)

Stove evergreens. Cuttings of young shoots, getting firm, in spring and summer, in sandy peat, under a bell-glass, and in bottom-heat; peat and loam. Summer temp., 60° to 85°; winter, 45° to 55°. *Pulcherrima* has large clusters of long crimson stamens. To succeed well with it, and in a small plant, give it a fair heat in summer, and plenty of moisture; but keep it cool and rather dry for several months in winter.

- I. affinis* (kindred). 20. Pink. Brazil. 1800.
 — *anomala* (anomalous). 10. Red. June. Mexico. 1729.
 — *Bourgoïni* (Bourgon's). 20. Pink. Guiana. 1752.
 — *comosa* (tufted). 30. Pink. Jamaica. 1818.
 — *Coromandeliana* (Coromandel). White. E. Ind. 1818.
 — *cyclocarpa* (circle-podded). 60. White. Caraccas. 1826.
 — *du'lcis* (sweet). 20. Pink. E. Ind. 1800.
 — *foetida* (foetid). 20. Pink. W. Ind. 1816.
 — *fastuosa* (splendid). Red. Caraccas. 1820.
 — *Fenillei* (Fenillee's). 8. White. Lima. 1824.
 — *Harrisii* (Harris's). Crimson. February. Mexico. 1836.
 — *Houstoïni* (Houston's). 10. Purple. July. Mexico. 1729.
 — *Hymenoides* (Hymenia-like). 20. Pink. Cayenne. 1823.
 — *Jiringa* (Jiringa). White. Malacca. 1828.
 — *latifolia* (broad-leaved). 10. Purple. May. W. Ind. 1768.
 — *laurina* (laurel-leaved). 20. White. S. Amer. 1818.
 — *marginata* (margined). 20. Pink. S. Amer. 1820.
 — *melli'fera* (honeyed). White. Arabia. 1826.
 — *microphylla* (small-leaved). 20. Pink. Cumanana. 1817.
 — *pulcherrima* (fairest). 20. Mexico. 1822.
 — *purpurea* (purple. Soldier Wood). 6. Purple. April. W. Ind. 1733.
 — *Saman* (Saman). 60. Jamaica. 1826.
 — *setifera* (bristle-bearing). 20. Pink. Guiana. 1824.
 — *splendens* (shining). White. March. Caraccas. 1825.
 — *stipularis* (stipuled). Cayenne. 1831.
 — *tergemina* (three-paired). 20. Pink. W. Ind. 1820.
 — *velutina* (velvety). 30. Para. 1820.

INOCA'RPUS. Otaheite Chestnut. (From is, a fibre, and *karpas*, a fruit. Nat. ord., *Daphnads* [Thymelacæ]. Linn., 10-De-candria 1-Monogynia. Allied to Hernandia.)

The kernels are roasted and eaten in the islands as we use chestnuts. Stove evergreen tree. Cuttings of the ripened shoots in sand, and in heat; peat and loam.

I. edulis (eatable). 20. White. July. South Sea Islands. 1793.

INOCULATION. Same as Budding.

INOCULATING GRASS. See TURF.

INTERMEDIATE. A species is often named intermediate, because possessing the different characteristics of two others.

A *hothouse* is intermediate when kept

at a temperature higher than that usual in a greenhouse, and lower than that usual in a stove.

INULA. (A word of doubtful origin, said to be a corruption of *helenium*. Nat. ord., *Compositae* [*Asteraceae*]. Linn., 19-*Syngenesia* 1-*Æqualis*.)

Inula helenium or Elecampane, furnishes the *Vin d'Aulnee* of the French. Hardy herbaceous perennials, with yellow flowers. The annuals not being worth cultivating, are omitted. Seeds, or divisions of the roots; common garden-soil. They are interesting, though rather rough-looking.

I. calycina (large-calyxed). 1½. July. Sicily. 1827.
— *ensifolia* (sword-leaved). 2. August. Austria. 1793.

— *Germanica* (German). 4. July. Germany. 1759.

— *glabra* (smooth). June. Caucasus. 1831.

— *glandulosa* (glanded). 2. August. Georgia. 1804.

— *grandiflora* (large-flowered). 2. July. Caucasus. 1810.

— *hirta* (hairy). 1. July. Austria. 1759.

— *hybrida* (hybrid). 2. July. Podolia. 1813.

— *Mariaana* (Maryland). 1. July. N. Amer. 1742.

— *molliis* (soft). 2. July.

— *montana* (mountain). 1½. August. South Europe. 1759.

— *oculus Christi* (Christ's-eye). 1½. July. Austria. 1759.

— *odorata* (fragrant). 1½. July. South Europe. 1821.

— *quadridentata* (four-toothed-flowered). 1. August. Spain. 1820.

— *saxatilis* (rock). 2. July. South Europe. 1816.

— *suaevoleus* (sweet-scented). 1½. July. South Europe. 1758.

— *trilobata* (three-lobed). July. Sinai. 1837.

— *Vaillantii* (Vaillant's). 2. September. France. 1739.

— *verbascifolia* (mullein-leaved). 1½. July. Caucasus. 1819.

— *viscosa* (clammy). 1½. July. South Europe. 1596.

IO'CHROMA. (From *ion*, violet, and *chroma*, colour; referring to the purple colour of the flowers. Nat. ord., *Nightshades* [*Solanaceae*]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Habrothamnus*.)

Greenhouse shrubs. Cuttings of young shoots, getting a little firm, in sandy soil, with a bell-glass in summer; sandy peat and fibry loam. Winter temp., 40° to 45°.

I. calycina (large-calyxed). Green. Guiana.

— *grandiflora* (large-flowered). Saragina.

— *tubulosa* (tubular). Purple. August. Yangana.

ION'DRUM. (From *ion*, violet, and *eidos*, resembling. Nat. ord., *Violetworts* [*Violaceae*]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to our Violets.)

The South American species possess much of the qualities of, and are substituted for, *Ipecacuanha*. Herbaceous plants, flowering in June, by division and seed; under-shrubs, by cuttings in sand, under a bell-glass; peat and loam. All the following require greenhouse culture, except *strictum*, which is a stove plant.

I. Capeense (Cape). 1. White. Cape of Good Hope. 1824.

I. polygalæfolium (polygala-leaved). 1. Green, yellow. S. Amer. 1797.

— *Sprengeliaenum* (Sprengel's). 1. White. Pennsylvania. 1818.

— *strictum* (upright). 2. White. W. Ind. 1824.

IONOPSEIS. (From *ion*, violet, and *opsis*, like. Nat. ord., *Orchids* [*Orchidaceae*]. Linn., 20-*Gynandria* 1-*Monandria*. Allied to *Burlingtonia*.)

Stove orchids. For culture, see *BURLINGTONIA*.

I. pulchella (handsome). Violet. July. Merida.
— *utricularioides* (utricularia-like). 2. White, purple. October. Trinidad. 1822.

IPECACUA'NHA. *Cephaelis ipecacuanha*.

IPOME'A. (From *ips*, bindweed, and *homoios*, similar. Nat. ord., *Bindweeds* [*Convolvulaceae*]. Linn., 5-*Pentandria* 1-*Monogynia*.)

Annuals, by seed in a hotbed; perennials, by seed and cuttings of the short side-shoots, in sandy peat, under a bell-glass, and in a good bottom-heat; bulbous and tuberous, by division, and by cuttings of the young shoots, as they come once growing; the bulbs and tuberous ones, especially the harder ones, are used for herbaceous grafting, merely making a cleft, and slipping the young shoot into the place, claying over, and plunging in a hotbed; stout, short stems, with roots of *Sello'wii*, are frequently used for grafting the more tender sorts; peat and loam. Temp. for stove kinds, 60° to 85° in summer; 50° to 60° in winter. The crimson *Horsfallia* requires a good heat.

STOVE ANNUALS.

I. caelestina (sky-blue). Blue. August. 1840. Twiner.

— *filicaulis* (thread-stalked). Yellow. July. E. Ind. 1778.

— *muricata* (point-covered). 8. Blue, purple. August. E. Ind. 1777.

— *tridentata* (three-toothed). 10. Yellow. July. E. Ind. 1778.

HARDY TWINERS.

I. caudicans (whitish). 15. White. July. N. Amer. 1776.

— *lacunosa* (pitted). 10. White. June. N. Amer. 1640. Deciduous.

— *pandurata* (fiddle-shaped). 12. White, purple. June. N. Amer. 1732. Deciduous.

— *sagittifolia* (arrow-head-leaved). 3. Rose. July. Carolina. 1819. Deciduous.

— *Sibirica* (Siberian). 6. Flesh. July. Siberia. 1779. Deciduous.

— *sinuata* (scalloped-leaved). 6. White. July. Florida. 1813. Evergreen.

GREENHOUSE TWINERS.

I. armata (armed). 6. Purple. July. Mexico. 1824. Biennial.

— *crassipes* (thick-flower-stalked). 3. Purple. August. S. Africa. 1842.

— *macrorrhiza* (long-rooted). 10. White. August. Georgia. 1815. Tuber.

— *rubra* (red). Red, purple. August. Mexico. 1815.

— *pendula* (hanging-down). 10. Pink. July. N. S. Wales. 1805. Evergreen.

— *quinata* (five-leafleted). Violet. July. Mexico.

— *Sello'wii* (Sellow's). 10. 1831. Deciduous.

STOVE DECIDUOUS TWINERS.

- I. Aito'ni* (Aiton's). 10. Pale purple. Juné.
 — *batafor'des* (batatas-like). 6. Purple, crimson. July. Mexico. 1840.
 — *campanula'ta* (bell-flowered). 8. Purple, white. August. E. Ind. 1800.
 — *Caroli'na* (Carolina). 10. Purple. July. Carolina. 1732.
 — *ficifo'lia* (fig-leaved). 3. Purple. November. Buenos Ayres. 1840.
 — *involucra'ta* (involucrated). 4. Red. July. Guinea. 1823.
 — *leuca'ntha* (white-flowered). 6. White. August. S. Amer. 1823.
 — *longifo'lia* (long-leaved). 5. White. July. Mexico. 1838.
 — *multifo'ra* (many-flowered). 6. Pink. June. Jamaica.
 — *ochra'cea* (yellowish). Yellow. August. Guinea. 1826.
 — *pes-tig'ridis* (tiger's-foot). 6. Red. August. E. Ind. 1732.
 — *pilo'sa* (long-haired). 4. Pink. August. E. Ind. 1815.
 — *rubro-cæru'lea* (reddish-blue). 8. Blue, red. September. Mexico. 1823.
 — *Schiede'na* (Schiede's). Blue. October.
 — *seto'sa* (bristly). 9. Purple. August. Brazil.
 — *solanifo'lia* (nightshade-leaved). 8. Pink. July. America. 1759.
 — *viola'cea* (violet-flowered). 8. Purple. August. S. Amer. 1792.

STOVE EVERGREEN TWINERS.

- I. acuminata* (sharp-pointed). 6. Purple. July. W. Ind. 1818.
 — *albivenia* (white-veined). Yellow. September. Algoa Bay. 1824.
 — *Bonarie'nsis* (Buenos Ayres). Purple. August. Buenos Ayres. 1826.
 — *Cairica* (Cairo). 8. Red. July. Egypt. 1680.
 — *chrysoi'des* (golden). 4. Yellow. July. China. 1817.
 — *corymbo'sa* (corymbed). 2. White. July. E. Ind. 1823.
 — *fastigia'ta* (pyramidal). 10. Purple. June. W. Ind. 1816.
 — *grandiflo'ra* (large-flowered). 8. White. September. E. Ind. 1802.
 — *Hooker'i* (Hooker's). White, red. August. Mexico. 1830.
 — *Horsfalli'a* (Mrs. Horsfall's). 20. Rose-coloured. October. E. Ind. 1833.
 — *jala'pa* (jalap). 10. Red. August. America. 1733. Tuber.
 — *Lea'rri* (Mr. Lear's). 30. Dark red. September. Ceylon. 1839.
 — *mutabilis* (changeable). 10. Blue. July. S. Amer. 1812.
 — *pes-ca'præ* (goat's-foot). Purple. June. India. 1776. Creeper.
 — *polyanthes* (auricula-flowered). 20. Yellow. August. W. Ind. 1739.
 — *pu'dibunda* (blushing). 6. Rose-coloured. August. St. Vincent. 1822.
 — *puleh'ella* (pretty). 20. Purple. December. Ceylon. 1845.
 — *purga* (purgative). Crimson. August. Mexico.
 — *repanda* (wavy-edged). 10. Scarlet. July. S. Amer. 1793.
 — *rep'lans* (creeping). 4. Purple. July. E. Ind. 1806. Creeper.
 — *sepiaria* (hedge). 8. Red. July. E. Ind. 1817.
 — *stipula'cea* (stipuled). 6. Purple. September. E. Ind. 1805. Creeper.

- I. tuberosa* (tuberous-rooted). 10. Pale yellow. August. W. Ind. 1731. Tuber.
 — *uniflo'ra* (one-flowered). August. S. Amer. 1731.
 — *Turpe'thum* (Turpeth). 5. White. August. E. Ind. 1752.
 — *Tweedie'i* (Mr. Tweedie's). 6. Beddish-purple. July. Parana. 1838.
 — *tyria'nthina* (purple). Purple. October. Mexico.
 — *umbella'ta* (umbelled). Scarlet. June. S. Amer. 1739.
 — *vitifo'lia* (vine-leaved). 10. Yellow. July. E. Ind. 1820.

IPOMO'PSIS. (From *ipo*, to strike forcibly, and *opsis*, sight. Nat. ord., *Phlox-worts* [Polemoniaceæ]. Linn., 5-Pentandria 1-Monogynia. Allied to Navarretia.)

A beautiful hardy plant, once known as *Gilia pulchella*. Must be treated as a biennial; it is most impatient of wet, and yet it must not be allowed to get dry; sow in beginning of August, and if sown thinly round the edges of a pot, it will be better than having to transplant the seedlings, as they are touchy things to shift as well as to water. For a six-inch pot, three or four plants may be left; but it is best not to thin too much until spring, for fear of winter deaths. The greatest care is necessary during winter to keep the plants in an airy situation in a cool greenhouse, as the least extra moisture, either near the neck of the plant, or from drip, will send it off. Soil, fibry loam and turfy peat, with pieces of charcoal and broken potsherds, so as to make the soil open, covering it with finer material on the top, to prevent drying too rapidly. If thus attended to, the plants will bloom at Midsummer, or earlier; but, generally, all the better if not till within ten months of the seed being sown.

I. elegans (elegant). Scarlet. July. N. Amer. 1820.

I'PSEA. (Not explained. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-Gynandria 1-Monandria. Allied to Paxtonia.)

Stove orchid. Rough peat and a little fibry loam. Summer temp., 60° to 90°; winter, 55°.

I. speciosa (showy). May. Ceylon. 1840.

IRES'NE. (From *eiros*, wool; referring to the woolly aspect of the branches. Nat. ord., *Amaranths* [Amaranthaceæ]. Linn., 22-Diacia 5-Pentandria. Allied to Gomphrena.)

Half-hardy, herbaceous, white-flowered perennials. Division in spring, and by sowing and sowing the seeds in a gentle hotbed; sandy loam, leaf-mould, and a little peat. If saved over, must be protected in a cold pit or frame during the winter.

I. celosioi'des (celosia-like). 1½. July. S. Amer. 1733.

- *diffusa* (straggling). 1½. July. S. Amer. 1818.
 — *elatior* (taller). 3. July. Antilles. 1820. Annual.
 — *longata* (long-leaved). 2. July. S. Amer. 1822.
 — *flavescens* (pale yellow). 1. July. S. Amer. 1824.

I'RIS. (From *iris*, the eye; referring to the variety and beauty of the flowers. Nat. ord., *Irids* [Iridaceæ]. Linn., 3-Triandria 1-Monogynia.)

A beautiful hardy family of summer-flowering plants, though most of the bulbous species will,

by forcing, flower early in spring. Herbaceous species, by suckers from the root, and division of their fleshy rhizomes. Bulbous ones, by offsets; and all by seeds. Rich, loamy soil suits the herbaceous; but the others should have a good proportion of sand, leaf-mould, and peat.

GREENHOUSE HERBACEOUS.

- I. claudesti'na* (secret). May. Brazil. 1829.
— *caelesti'na* (sky-blue). 1½. Blue. June. N. Amer. 1824.
— *crassifo'lia* (thick-leaved). ½. Pale blue. June. Cape of Good Hope. 1830.
— *defle'xa* (bent-down). 1½. Lilac. June. Nepaul. 1833.

HARDY BULBS.

- I. ala'ta* (winged). ½. Blue. June. Algiers. 1801.
— *Lusita'nica* (Portuguese). 2. Blue. April. Portugal. 1796.
— *Persica* (Persian). ½. Blue, yellow. May. Persia. 1629.
— *tenuifo'lia* (slender-leaved). 1½. Light blue. May. Dauria. 1796.
— *tubero'sa* (tuberous). ¾. Green, blue. March. Levant. 1597.
— *xip'hium* (xiphium). 1½. Blue, yellow. June. Spain. 1596.
— *xiphoi'des* (xiphium-like). 1½. Blue, yellow. June. Spain. 1571.

HARDY HERBACEOUS.

- I. acu'ta* (pointed-leaved). 2. Blue. May.
— *ame'na* (delicate). 1. Blue. May. 1821.
— *arenda'ria* (sand). ½. Yellow. June. Hungary. 1820.
— *au'rea* (golden). 2. Yellow. June. Germany. 1826.
— *bi'color* (two-coloured). 1. Yellow, purple. May.
— *bifo'ra* (two-flowered). 1½. Purple. June. South Europe. 1596.
— *biglu'mis* (two-glumed). ½. Blue. April. Siberia. 1811.
— *Blondo'vii* (Blondow's). Blue. April. Altai. 1832.
— *Bohe'mica* (Bohemian). 1. Blue. May. Bohemia. 1825.
— *Boltonia'na* (Bolton's). 2. Blue. May. N. Amer. 1825.
— *brachy'cu'spis* (short-pointed). 1½. Purple. May. Siberia. 1819.
— *Cauca'sica* (Caucasian). ½. Yellow. July. Caucasus. 1821.
— *Chine'nsis* (Chinese). 1. Pale blue. China. 1792.
— *crista'ta* (crested). ½. Pale blue. June. N. Amer. 1756.
— *cu'prea* (copper-coloured). 2. Orange. June. N. Amer. 1812.
— *curtople'tala* (short-petaled). 1½. Yellow, blue. May. 1823.
— *deserto'rum* (desert). 1½. Blue. July. Russia. 1811.
— *dicho'toma* (forked). 1. Light blue. August. Dauria. 1784.
— *e'legans* (elegant). 2. Yellow. July. 1823.
— *ensa'ta* (sword-shaped-leaved). 1½. Blue, purple. June. Austria. 1787.
— *flave'scens* (pale yellow). 2. Yellow. May. 1818.
— *flavi'ssima* (yellowest). ¾. Yellow. May. Siberia. 1814.
— *fle'xu'sa* (zigzag). 2. White. May. Germany. 1810.
— *Florenti'na* (Florentine). 2. White. May. South Europe. 1596.
— *mi'nor* (less). 1½. Grey. May. Gardens.
— *fæti'dissima* (most-fetid. *Stinking Gladwyn*). 1½. Livid. June. Britain.
— *variega'ta* (variegated-leaved). 1½. Livid. June. Britain.

- I. fra'grans* (sweet-scented). Blue, white, purple. June. India. 1839.
— *furca'ta* (forked). ¾. Blue. March. Tauria. 1822.
— *Germa'nica* (German). 3. Blue. May. Germany. 1573.
— *fl'o're-al'bo* (white-flowered). 3. White. May. Gardens.
— *grami'nea* (grass-leaved). ¾. Striped. June. Austria. 1597.
— *Guldensta'dtii* (Guldenstadt's). 2. Yellow. April. Siberia. 1757.
— *halo'phila* (salt-loving). 3. Blue. August. Siberia. 1780.
— *Hooke'ri* (Hooker's). 1½. Purple. May. N. Amer. 1826.
— *Hu'mei* (Sir A. Hume's). 2. Blue. April. Nepaul. 1822.
— *hu'milis* (low). 1. Blue. April. Caucasus. 1812.
— *Hunga'rica* (Hungarian). 1. Violet. May. Hungary. 1815.
— *Ibe'rica* (Iberian). 1½. Red. May. Iberia. 1820.
— *imbrica'ta* (imbricated-bracted). 2. Yellow. May.
— *laviga'ta* (smooth). Blue. May. Siberia. 1836.
— *li'vida* (livid). 1½. Livid. April. Levant.
— *longifo'ra* (long-flowered). 2. May. 1824.
— *longifo'lia* (long-leaved). ¾. Greenish. April. Naples. 1829.
— *longispa'tha* (long-spathed). 3. Purple. July. Siberia. 1823.
— *lu'rida* (dingy). 2. Brown. April. South Europe. 1758.
— *lute'scens* (clayey). ½. Yellow. April. Germany. 1748.
— *Monnie'ri* (Monnier's). ½. Yellow. May. Greece. 1820.
— *negle'cta* (neglected). 2. Pale blue. May.
— *Nepale'nsis* (Nepaul). 1½. Blue. April. Nepaul. 1823.
— *Nertchi'nskia* (Nertchinsk). ¾. Blue. May. Siberia. 1831.
— *no'tha* (bastard). 1½. Blue. May. Italy. 1820.
— *nudica'vis* (naked-stemmed). 1. Blue. May. 1820.
— *ochroleu'ca* (yellowish-white). 4. Light yellow. July. Levant. 1757.
— *odora'ta* (sweet-scented). 2. Blue. June. 1821.
— *orien'talis* (eastern). 1. Light blue. May. China. 1790.
— *Palla'sii* (Pallas's). 2. Blue. May. Tartary. 1820.
— *pa'lida* (pale). 3. Pale blue. May. Turkey. 1596.
— *plica'ta* (plaited). 2. White, blue. June. 1821.
— *prisma'tica* (prismatic). 1. Purple. May. N. Amer. 1812.
— *pseu'do-a'corus* (bastard acorus). 3. Yellow. June. Britain.
— *pu'lida fla'va* (pale yellow). 3. Pale yellow. June. N. Amer. 1812.
— *variega'tis* (variegated-leaved). 3. Yellow. June. Britain.
— *pu'mila* (dwarf). ¾. Purple. May. Austria. 1596.
— *a'lba* (white-flowered). ½. White. May.
— *a'lba caru'lea* (white and blue). ½. White, blue. May.
— *caru'lea* (blue-flowered). ½. Blue. May.
— *reticula'ta* (netted). ¾. Blue. March. Iberia. 1821.
— *Ruthe'nica* (Russian). 1. Blue. May. Siberia. 1804.
— *sambuci'na* (elder-scented). 3. Light blue. June. South Europe. 1658.
— *scario'sa* (membranous). 1. Blue. May. Russia. 1826.
— *seto'sa* (bristle-pointed). 1½. Blue, purple. May. Siberia. 1844.

- I. Sibirica* (Siberian). 3. Light blue. May. Siberia. 1596.
 — *flore-albo* (white-flowering). 2½. White. May. Siberia. 1596.
 — *flore-pleno* (double-flowered). 3. Purple. May. Gardens.
 — *so'rdida* (dirty). 1½. White. May. 1819.
 — *spathulata* (spatulate-flowered). 1. Pale blue. June. Germany. 1759.
 — *spur'ia* (spurious). 1½. Pale blue. May. Siberia. 1759.
 — *squalens* (daubed). 2. Striped. May. South Europe. 1768.
 — *steno'gyne* (narrow-stigmaed). 1½. Yellow. June. 1819.
 — *stylo'sa* (large-styled). Blue. May. Corfu. 1844.
 — *sub-biflo'ra* (sub-two-flowered). 1½. Violet. July. Portugal. 1596.
 — *Susid'na* (Susian). 2. Striped. April. Levant. 1596.
 — *Swe'rtii* (Swert's). 1½. White. May. 1819.
 — *Tange'rica* (Tangier). Yellow. June. Tangiers. 1820.
 — *Tau'rica* (Taurian). Yellow. June. Tauria. 1827.
 — *te'nas* (tough). Purple. July. California. 1826.
 — *tridenta'ta* (three-toothed). 1½. Blue. May. N. Amer. 1820.
 — *triflo'ra* (three-flowered). 1. Blue. June. Italy. 1821.
 — *variegata* (variegated). 2. Striped. May. Hungary. 1597.
 — *ventrico'sa* (swollen). 1. Pale blue. June. Dauria. 1800.
 — *ve'rna* (spring). 1. Purple. April. Virginia. 1748.
 — *versicolor* (various-coloured). 1. Variegated. May. N. Amer. 1732.
 — *viola'cea* (violet-coloured). ½. Violet. May. South Europe. 1800.
 — *vire'scens* (greenish). 1. Yellow. May. 1820.
 — *Virginica* (Virginian). 1. Blue. June. N. Amer. 1758.

IRISH HEATH. *Menzie'sia polifo'lia*.

IRON-TREE. *Siderode'ndren*.

IRONWORT. *Sideri'tis*.

IRON WOOD. *Sidero'xylon* and *Metroside'ros*.

IRRIGATION. Experience shows that there is in the kitchen-garden scarcely a crop that is not benefited by a much more abundant supply of water than can be obtained usually; and we can bear testimony to the correctness of Mr. Knight's conclusion, not limiting, however, our approval of such abundant watering to late crops of peas, but to all, as well as beans, spinach, and the entire cabbage tribe. Kidney beans and potatoes are not benefited by such an abundance of water. "The quantity of water," says Mr. Knight, "which may be given with advantage to plants of almost every kind, during warm and bright weather, is, I believe, very much greater than any gardener who has not seen the result will be inclined to suppose possible; and it is greater than I myself could have be-

lieved upon any other evidence than that of actual experience. My garden, in common with many others, is supplied with water by springs, which rise in a more elevated situation; and this circumstance afforded me the means of making a small pond, from which I can cause the water to flow out over every part throughout the summer; and I cause a stream to flow down the rows of celery, and along the rows of brocoli and other plants, which are planted out in summer, with very great advantage. But the most extensive and beneficial use which I make of the power to irrigate my garden by the means above-mentioned, is in supplying my late crops of peas abundantly with water, by which the ill effects of mildew are almost wholly prevented, and my table is most abundantly supplied with very excellent peas through the month of October."

ISA'NTHUS. (From *isos*, equal, and *anthos*, a flower; referring to the regularity of the flowers. Nat. ord., *Lipworts* [Lamiaceæ]. Linn., 14-*Didynamia* 1-*Gymnospermia*. Allied to Mint.)

Hardy annual. Seeds in April, in a peaty border, or in a little heat, in March, and transplanted.

I. ceru'leus (blue). 1. Blue. July. N. Amer. 1818.

ISE'RTIA. (Named after *P. E. Isert*, a German surgeon. Nat. ord., *Cinchonads* [Cinchonaceæ]. Linn., 6-*Hexandria* 1-*Monogynia*.)

Stove evergreen shrub. Cuttings in sandy soil, in a hotbed, in spring or summer; peat and loam, with a little charcoal and silver sand. Summer temp., 60° to 85°; winter, 55°.

I. coccine'a (scarlet). 10. Scarlet. July. Guinea. 1820.

ISME'LLIA. (Probably a commemorative name. Nat. ord., *Composites* [Asteraceæ]. Linn., 19-*Syngenesia* 2-*Superflua*.)

This should be united to *Chrysanthemum*. Half-hardy evergreen shrub. Seeds in spring, in a gentle hotbed; cuttings of firm young side-shoots in summer; sandy loam. Winter temp., 35° to 40°.

I. Made'rensis (Madeira). 2. Straw. May. Madeira. 1834.

ISME'NE. Peruvian Daffodil. (After *Ismene*, the daughter of *Oedipus* and *Jocasta*. Nat. ord., *Amaryl'lids* [Amaryl'idaceæ]. Linn., 6-*Hexandria* 1-*Monogynia*. Allied to *Choretis*.)

"Absolute rest in winter is essential to this genus." They should be planted out in a border in April, and taken up when the frost cuts the leaves; deep, sandy soil suits them best. Offsets.

- I. Amaranthaceae* (Amaranths). 2½. Yellow. June. Peru. 1804.
 — *calathinum* (cup-flowered). 2½. White. June. Brazil. 1800.
 — *deflexa* (turned-down). Yellow. June.
 — *Knightii* (Knight's). 2. White. March. Florida. 1836.
 — *Macleana* (M'Lean's). 2. White. June. Lima. 1837.
 — *nuttans* (nodding). 2½. White. June. Brazil. 1800.
 — *prolifera* (proliferous). Yellow. June. Peru. 1836.
 — *viridescens* (greenish). 1½. Greenish-white. July. Cusco. 1840.

ISOCHILUS. (From *isos*, equal, and *cheilos*, a lip. Nat. ord., *Orchids* [*Orchidaceae*]. Linn., 20-*Gynandria* 1-*Monandria*. Allied to *Cœlogyne*.)

Stove orchids; cultivated like the first section of *Cœlogyne*.

- I. carnosiflorus* (fleshy-flowered). 1½. Purple. November. Honduras. 1841.
 — *fusiformis* (spindle-rooted). ½. Yellow. July. Trinidad.
 — *graminifolium* (grass-leaved). ½. Green, yellow. May. Jamaica. 1823.
 — *grandiflorus* (large-flowered). Peru. 1840.

ISOLOMA. (From *isos*, equal, and *loma*, an edge; referring to the edges of the fronds. Nat. ord., *Polypods* [*Polypodiaceae*]. Linn., 24-*Cryptogamia* 1-*Filices*.)

Stove Ferns. See **FERNs**.

- I. divaricens* (wide-spread). Brown, yellow. July. Malacca.
 — *lanuginosa* (woolly). Brown. July. E. Ind.

ISOMERIS. (From *isos*, equal, and *meris*, a part; referring to the petals, with the stamens and pistils, which are of equal length. Nat. ord., *Capparids* [*Capparidaceae*]. Linn., 6-*Hexandria* 1-*Monogynia*. Allied to *Cleome*.)

Hardy deciduous shrub. Cuttings of the ripe young shoots, in autumn; sandy loam and a little leaf-mould. The flowers are anything but sweet. *I. arborescens* (tree-like). 10. Yellow. May. California. 1839.

ISONANDRA. Gutta Percha-tree. (From *isos*, equal, and *ander*, the male organ, or stamen; referring to an equal number of fertile and barren stamens. Nat. ord., *Sapotads* [*Sapotaceae*]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Bumelia*.)

An evergreen tree, supposed to be propagated by cuttings, requiring stove treatment, and light soil, consisting of sandy peat and fibry loam.

- I. gutta* (gutta percha). Borneo. 1847.

ISOPLEXIS. (From *isos*, equal, and *pleco*, to plait; the upper plait or segment of the flower being of equal length with the lip. Nat. ord., *Figworts* [*Scrophulariaceae*]. Linn., 14-*Didynamia* 2-*Angiospermia*. Allied to the Foxglove.)

Greenhouse evergreen shrubs. Seeds and cut-

tings of half-ripened short shoots in spring, in sand, under a bell-glass; sandy loam and rough leaf-mould. Winter temp., 40° to 45°.

- I. Canariensis* (Canary). 4. Yellow. June. Canaries. 1698.

— *sceptrum* (sceptre). 2. Yellow, brown. July. Madeira. 1777.

ISOPO'GON. (From *isos*, equal, and *pogon*, a beard; referring to the beard-like fringes on all parts of the inflorescence. Nat. ord., *Proteads* [*Proteaceae*]. Linn., 4-*Tetrandria* 1-*Monogynia*. Allied to *Protea*.)

Greenhouse evergreen shrubs, from New Holland. Cuttings of ripe young shoots, with most of the leaves left, inserted firmly in silver sand, over sandy loam and peat, and covered with a bell-glass or hand-light, and kept in the shade; when the cuttings are callusing at the bottom, they may be pushed on by giving them a little mild bottom-heat, but not before; fibry loam three parts, fibry peat one part, charcoal, broken freestone, and broken crocks one part; good drainage; watering must be given with great attention, as much dryness or much moisture are alike ruinous. Summer temp., 50° to 75°; winter, 35° to 45°. In summer, if the plants are out of doors, the sun should not strike freely on the sides of the pot.

- I. anemonifolius* (anemone-leaved). 5. Yellow. July. 1791.

— *Baxteri* (Baxter's). 2. Rose. April. 1831.

— *corniger* (horned).

— *divaricatus* (spreading). 3. Pale. May. 1824.

— *formosus* (handsome). 4. Rose. April. 1805.

— *longifolius* (long-leaved). 3. Yellow. April. 1823.

— *Loudoni* (Loudon's). 4. Purple. June. 1830.

— *roseus* (rose-coloured). Rose. 1840.

— *scaber* (rough-leaved). 3. Lilac. April. 1842.

— *spatulifolius* (spatulate-leaved). Purple.

— *linearis* (narrow). 2. Purple. September. 1830.

— *sphaercephalus* (round-headed). 4. Yellow.

March.

ISO'TOMA. We have not separated this genus from *Lobelia*.

ISO'TROPIS. (From *isos*, equal, and *tropos*, turned; referring, probably, to the distinctly-forked veins in the flower. Nat. ord., *Leguminous Plants* [*Fabaceae*]. Linn., 10-*Decandria* 1-*Monogynia*. Allied to *Oxylobium*.)

Greenhouse evergreen shrub. Cuttings of the young shoots, when getting a little firm, in sand, over sandy peat, and covered with a bell-glass, in June; sandy peat, with a little fibry loam, pieces of charcoal, and broken crocks; drainage and watering must be particularly attended to. Winter temp., 40° to 48°; summer, a shady place, or a cold pit, where the plant partly, and the pot wholly, are sheltered from the sun's rays.

- I. striata* (streaked-flowered). 1. Orange. June. Swan River. 1838.

I'TEA. (The Greek name for the Willow, applied to this genus on account of its rapid growth in damp soil. Nat. ord., *Escalloniads* [*Escalloniaceae*]. Linn.,

5-Pentandria 1-Monogynia. Allied to *Es-callonia*.)

A hardy deciduous shrub. Seed and suckers in spring; layers in summer; moist, sandy peat.

I. Virginica (Virginian). 6. White. July. N. Amer. 1774.

IVY. *He'dera*.

I'XIA. (From *ixia*, bird-lime; in reference to the clammy juice. Nat. ord., *Irids* [Iridaceæ]. Linn., 3-Triandria 1-Monogynia.)

Half-hardy bulbs, from the Cape of Good Hope. The true *Ixia* are known from *Spara'xis* by not having, like it, a jagged sheath; from *Babia'na*, in having a dry seed-pod instead of a berry; and from *Trito'nia*, by having the stamens inserted at the bottom of the petals instead of in the tube of the flower. They will all grow in rough peat; the strong ones require very little sand, and the smaller ones want one-third sand in the compost. They succeed well in a warm border, if sheltered from hard frosts, and not allowed to get dry when they are in growth. By seeds sown in a little heat, in spring; also by offsets; sandy loam, peat, and a little leaf-mould. When done flowering, they may be kept in or out of the pots, after the leaves get withered, without any water, until fresh growth commences. They will generally require to be potted in October, and should then be placed in a cold pit, and protected from frost, and cold, heavy rains, and taken to the greenhouse or window, after roots are plentifully formed. Many will do very well if planted in sandy soil and leaf-mould, about four inches deep, in a dry, raised border, and protected there from severe frost and heavy rains by litter, and any material that will throw off the water.

- I. amœ'na* (delicate). 1. Red. April. 1822.
- *arista'ta* (awned). 1. Pink. April. 1800.
- *au'lica* (courtly). 2. Pink. April. 1774.
- *capilla'ris* (capillary). 1½. Violet. April. 1774.
- *capita'ta* (headed). 2. White, blue. May. 1780.
- *columnella* (pillar). ½. Variegated. August. 1790.
- *co'nica* (conical). 1. Orange. April. 1757.
- *crateroi'des* (crater-like). ½. Dark yellow. May. 1778.
- *cri'spa* (curled-leaved). 1. Blue. April. 1787.
- *du'bia* (doubtful). ¾. Red. April.
- *ere'cta* (upright). 1½. White. June. 1757.
- — *incarna'ta* (flesh-coloured). 1. Flesh. May. 1757.
- — *lu'tea* (yellow). 1. Yellow. May. 1757.
- *flexuo'sa* (zigzag-stalked). 2. Pink. April. 1757.
- *furcata* (forked). ½. Pink. April. 1800.
- *hy'brida* (spurious). 1. White. June. 1757.
- *incarna'ta* (flesh-coloured). ¾. Flesh. May.
- *leuca'ntha* (white-flowered). 1½. White. April. 1779.
- *linea'ris* (narrow-leaved). ½. White. May. 1796.
- *macula'ta* (spotted). 1. White, brown. April. 1780.
- — *ochroleu'ca* (cream-coloured). 1. Purple, yellow. May. 1780.
- *monade'lpha* (monadelphous). ½. Blue. May. 1792.
- — *cu'rta* (short). ½. Orange. April. 1792.
- *ova'ta* (egg-shaped). 1. Red. April. 1780.
- *pa'tens* (spreading-flowered). 1. Purple. April. 1779.
- *retu'sa* (abrupt). 1. Light yellow. April. 1793.

- I. scilla'ris* (squill-flowered). 1. Variegated. January. 1787.
- *viridi'flo'ra* (green-flowered). 1. Green. May. 1780.

IXO'DIA. (From *ixodes*, viscid; in reference to the viscid secretions on the plant. Nat. ord., *Compositæ* [Asteraceæ]. Linn., 19-Syngenesia 1-Æqualis. Allied to *Ammobium*.)

Greenhouse evergreen shrub. Cuttings of the young shoots, getting hard at their base, in May, in sand, under a bell-glass, and kept in a close frame or pit; sandy peat, and a little fibry loam. Winter temp., 45° to 50°.

- I. achilleoi'des* (milfoil-like). 2. White. June. N. Holland. 1803.

IXIOLE'RION. (From *ixia*, and *leirion*, a lily; literally, *Ixia*-like Lily. Nat. ord., *Amaryllids* [Amaryllidaceæ]. Linn., 6-Hexandria 1-Monogynia. Allied to *Bra-voa*.)

Extremely rare, pretty, hardy bulbs, Dr. Herbert being the only person who recently possessed them in this country. His own plant of *I. monta-num* was the first specimen he saw in flower, and that in May, 1846, as he told us. It had a spiked inflorescence, while that of *I. Tata'ricum* is terminal; both have sky-blue flowers. *Monta-num* has been taken by some to be the "lily of the field." Seeds, and offsets of the bulbs, which are not at all particular as to soil.

- I. monta-num* (mountain). 1. Blue. June. Syria. 1844.
- *Tata'ricum* (Tartar). 1. Blue. Tartary.

IXO'RA. (Named after an Eastern heathen god, *Iswara*, to which the flowers are offered. Nat. ord., *Cinchonads* [Cinchonaceæ]. Linn., 4-Tetrandria 1-Monogynia.)

Beautiful stove evergreen shrubs. Cuttings of the half-ripened shoots in sand, over sandy peat, under a bell-glass, and in a brisk bottom-heat; sandy, fibry loam, and fibry peat, with pieces of charcoal, and broken bricks or pots. Summer temp., 60° to 90°; winter, 50° to 60°. Most stove plants delight in bottom-heat, where it can be given to them when growing and preparing for blooming, but none more so than this genus, as it is next to impossible to get it in its most splendid condition without such aids. Of all means of bottom-heat, this, like the Cape Jas-mines and others, delights in that produced from sweet, fermenting dung and leaves; and if so given, the insects that attack it—the scale, the red-spider, and sometimes the mealy bug—will be kept away. If this method is not resorted to, the plants will require frequent sponging with soap-water.

- I. arbo'rea* (tree-like). 3. Scarlet. August. E. Ind. 1800.
- *Bandhu'ka* (Bandhooka). 3. Scarlet. July. E. Ind. 1815.
- *barba'ta* (bearded). 12. White. July. E. Ind. 1823.
- *bla'nda* (gentle). 4. White. August. E. Ind. 1768.
- *cocci'nea supe'rbæ* (scarlet-superb). 4. Scar-let. August. Java. 1846.

- J. crocata* (saffron-coloured). 3. Orange. August. China. 1822.
 — *cuneifolia* (wedge-leaved). 3. White. June. E. Ind. 1822.
 — *flava* (yellow). 3. Scarlet. July. E. Ind. 1825.
 — *fulgens* (shining). 5. Orange. August. E. Ind. 1823.
 — *grandiflora* (large-flowered). 4. Red. August. E. Ind. 1814.
 — *Griffithii* (Griffith's). 4. Red, yellow. July. Singapore. 1845.
 — *incarnata* (flesh-coloured). 2. Purple. June. Moluccas. 1822.
 — *Javanica* (Javanese). 3. Orange. June. Java. 1846.
 — *lanceolaria* (spear-head-leaved). 6. Greenish-white. April. E. Ind. 1847.
 — *odorata* (sweet-scented). 3. Cream, rose. May. Madagascar. 1844.
 — *obovata* (reversed-egg-leaved). Crimson. May. E. Ind. 1810.
 — *parviflora* (small-flowered). White. August. E. Ind. 1800.
 — *rosea* (rosy). 4. Rose. July. Bengal. 1819.
 — *salicifolia* (willow-leaved). Orange. Borneo. 1847.
 — *sessilis* (stalkless-flowered). 4. White. E. Ind. 1828.
 — *stricta* (upright). 3. Scarlet. July. Moluccas. 1690.
 — *undulata* (wavy-leaved). White. June. E. Ind. 1818.

J.

JABOROSA. (From *Jaborose*, the Arabic for the Mandrake, an allied plant. Nat. ord., *Nightshades* [Solanaceæ]. Linn., 5-Pentandria 1-Monogynia.)

Herbaceous perennials. Division of the plant in spring; seeds in spring; and cuttings of the young shoots under a hand-light; light, sandy loam.

- J. integrifolia* (entire-leaved). 4. White. August. Buenos Ayres. Hardy.
 — *runcinata* (runcinate). 4. Green, yellow. Plata. 1831. Greenhouse.

JACARANDA. (The Brazilian name. Nat. ord., *Bignoniads* Bignoniaceæ]. Linn., 14-Didynamia 2-Angiospermia.)

Stove evergreen trees. Cuttings of half-ripened shoots in the beginning of summer, in sand, over sandy peat, and placed in bottom-heat, well shaded, or covered with a bell-glass; sandy peat, fibry loam, with charcoal, to keep the soil open. Summer temp., 60° to 85°; winter, 45° to 50°. In summer give plenty of water, but keep them cool and dryish in winter.

- J. Bahamensis* (Bahama). 10. Blue. July. Bahamas. 1824.
 — *Braziliana* (Brazilian). 20. Yellow. Brazil. 1820.
 — *filicifolia* (fern-leaved). 25. Blue. W. Ind. 1800.
 — *mimosifolia* (mimosa-leaved). 10. Blue. April. Brazil. 1818.
 — *pubescens* (downy). 15. Blue. 1825.
 — *tomentosa* (woolly). 20. Purple. Brazil. 1824.

JACA, or JACK-TREE. *Artocarpus integrifolia*.

JACK-IN-A-BOX. *Hernandia*.

JACKSONIA. (Named after G. Jackson, librarian to A. B. Lambert, Esq. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 10-Decandria 1-Monogynia. Allied to *Burtonia*.)

Greenhouse evergreen shrubs, with one exception, all from Australia, and all, but that one, yellow-flowered. Cuttings of half-ripened shoots in sand, under a glass, in April; peat and loam. Winter temp., 35° to 45°. *Scoparia* might be tried against a wall.

- J. densiflora* (crowded-flowered).
 — *floribunda* (many-flowered).
 — *furcellata* (fork-branched). 1834.
 — *grandiflora* (large-flowered). April. 1838.
 — *horrida* (horrid). 3. April. 1826.
 — *ligustrifolia* (privet-leaved). White. May. Nepal. 1839.

- *reticulata* (netted). 2. June. 1820.
 — *scoparia* (broom-like). 2. July. 1808.
 — *spinosa* (spinous). 2. July. 1808.
 — *Sternbergiana* (Sternberg's). April. 1837.
 — *thesioides* (thesium-like). April. 1820.

JACOBÆA LILY. *Hippeastrum formosissimum*.

JACOB'S LADDER. *Polemonium cœruleum*.

JACQUEMONTIA. (Named after Victor Jacquemont, a natural historian. Nat. ord., *Bindweeds* [Convolvulaceæ]. Linn., 5-Pentandria 1-Monogynia. Allied to *Ipomœa*.)

Blue-flowered evergreen twiners; *cane-scens* requiring a moderately warm greenhouse, and *violacea* a stove. Cuttings of small side-shoots in April or May, in sandy soil, under a bell-glass, and placed in a sweet bottom-heat; peat and loam.

- J. cane-scens* (hoary). August. Mexico. 1845.
 — *violacea* (violet). August. E. Ind. 1808.

JACQUINIA. (Named after the celebrated botanist, *Jacquin*. Nat. ord., *Ardisiads* [Myrsinaceæ]. Linn., 5-Pentandria 1-Monogynia. Allied to *Theophrasta*.)

Stove evergreens. Seeds in a hotbed; cuttings of ripened shoots in summer, and in a moist bottom-heat, in sand, covered with a bell-glass; sandy peat, with a very little fibry loam. Summer temp., 60° to 90°; winter, 58° to 65°. They require a highish temperature at all times.

- J. arboorea* (tree-like). 10. White. July. W. Ind. 1829.
 — *armillaris* (bracelet). 6. White. June. W. Ind. 1768.
 — *aurantiaca* (orange). 4. Orange. June. Sandwich Islands. 1796.
 — *linearis* (narrow-leaved). 1. Red. June. W. Ind. 1823.
 — *macrocarpa* (large-fruited). 6. Orange. June. Mexico. 1825.
 — *ruscifolia* (ruscus-leaved). 3. White. S. Amer. 1729.

JALAP. *Ecogonium purga*.

JAMAICA EBONY. *Brya ebenus*.

JAMAICA MILKWOOD. *Brosimum spuri-um*.

JAMAICA PEPPER. *Pimenta vulgaris*.
JAMAICA REDWOOD. *Gordonia hamatoxylon*.

JAMAICA ROSE. *Meriaenia*.

JAMBO'SA. (From *schamber*, the native name. Nat. ord., *Myrtleblooms* [Myrtaceæ]. Linn., 12-*Icosandria* 1-*Monogynia*. Allied to *Eugenia*.)

Stove evergreens, from the East Indies, except *australis*, which is a greenhouse evergreen. Cuttings of the shoots getting firm, in sand, under a bell-glass, and in heat; peat and loam. Summer temp., for stove shrubs, 60° to 85°; winter, 50° to 55°.

J. acuminata (pointed-leaved). Green. May. 1816.

— *amplexicaulis* (stem-clasping). 10. White. June. 1823.

— *aquea* (watery). 20. White. 1820.

— *australis* (southern). White. June. N. Holland. 1800.

— *laurifolia* (bay-leaved). White. May. 1824.

— *macrocarpa* (large-fruited). 20. White. May. 1822.

— *macrophylla* (large-leaved). 10. White. 1820.

— *malaccensis* (Malay Apple-tree). 25. Scarlet. July. 1768.

— *purpurea* (purple). Purple. June. 1768.

— *ternifolia* (three-leaved). White. May. 1822.

— *venosa* (veined). White. May. Madagascar. 1824.

— *vulgaris* (common). 25. Green, yellow. April. 1768.

JAMESONIA. (Named after *Dr. Jameson*, professor of botany at Quito. Nat. ord., *Polypods* [Polypodiaceæ]. Linn., 24-*Cryptogamia* 1-*Filices*.)

A greenhouse Fern. See FERNE.

J. imbricata (imbricated). Brown. May.

JAPAN CEDAR. *Cryptomeria*.

JAPAN EARTH. *Acaecia catechu* bark.

JAPAN VARNISH-TREE. *Rhus vernicifera*.

JAPANESE YEW. *Cephalotaxus*.

JANIPHA. (Its Brazilian name is *Janipaba*. Nat. ord., *Spurgevents* [Euphorbiaceæ]. Linn., 21-*Monæcia* 1-*Monadelphica*.)

Should be united to *Manihot*. Stove evergreen shrubs, with brown flowers. Seeds in a sweet hotbed; cuttings of young shoots getting firm, in a strong bottom-heat, in sandy peat, and covered with a bell-glass; peat and loam, sand, with a little charcoal. Summer temp., 60° to 90°; winter, 55° to 60°.

J. esculifolia (horse-chestnut-leaved). 3. Spain. 1826.

— *angustifolia* (narrow-leaved). 3. Brazil. 1829.

— *foetida* (foetid). 3. Mexico. 1824.

— *Lætingii* (Læting's). 3. July. Carthage. 1820.

— *Mañihot* (Cassava). 3. July. S. Amer. 1730.

JASIONE. Sheep's Scabious. (An ancient name used by Theophrastus. Nat. ord., *Bellworts* [Campanulaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*.)

Hardy herbaceous perennials, except *montana*, and all with blue flowers. Seeds, divisions, and cuttings under a hand-light, in spring. They require a sheltered place in winter, and like sandy soil, with a little peat or leaf-mould.

J. foliosa (leafy). 1. June. Spain. 1826.

— *humilis* (dwarf). 3. July. France. 1824.

— *montana* (mountain). 1. June. Britain. Annual.

— *perennis* (perennial). 1. July. France. 1787.

JASMINUM. Jasmine. (From *Ysmyn*, the Arabic name. Nat. ord., *Jasminworts* [Jasminaceæ]. Linn., 2-*Diandria* 1-*Monogynia*.)

All white-flowered, except where otherwise stated. The stove and greenhouse species, by cuttings in sand, in a little peat; the hardy species, by suckers, layers, and cuttings under a hand-light. A bud of the variegated plants of *officinalis* will frequently communicate the property to the whole of the plant; peat and loam for the house species; good, common soil for the hardy; *revolutum* and *proliferum* require a little protection in winter.

HARDY DECIDUOUS CLIMBERS, &c.

J. asifne (related). June. Himalayas. 1843. Shrub.

— *fruticans* (shrubby). 3. Yellow. July. South Europe. 1570. Shrub.

— *heterophyllum* (variable-leaved). 14. June. Nepal. 1820. Shrub.

— *humile* (low). 3. Yellow. July. South Europe. 1856. Deciduous.

— *officinale* (common). Shop. 15. July. E. Ind. 1548.

— *foliis argenteis* (silver-leaved). 15. July. E. Ind.

— *foliis aureis* (golden-leaved). 15. July. E. Ind.

— *floribus plenis* (double-flowered). 15. July. E. Ind.

HARDY EVERGREEN CLIMBERS, &c.

J. pubigerum (down-bearing). 10. Yellow. June. Nepal. 1827. Evergreen.

— *Reevesii* (Reeves's). Yellow. September. Shrub.

GREENHOUSE EVERGREEN CLIMBERS.

J. acuminatum (pointed-leaved). 10. June. N. Holland. 1820.

— *Azoricum* (Azorian). 5. July. Madeira. 1724.

— *Capeense* (Cape). 8. May. Cape of Good Hope. 1816. Shrub.

— *glaucum* (milky-green). 3. August. Cape of Good Hope. 1774.

— *gracile* (slender). 3. Norfolk Island. 1791.

— *grandiflorum* (large-flowered). 15. July. India. 1629.

— *lanceolatum* (spear-head-leaved). Sylhet. 1826.

— *ligustrifolium* (privet-leaved). May. Nepal. 1839. Shrub.

— *nudiflorum* (naked-flowered). 3. Yellow. December. China. 1844. Deciduous.

— *odoratissimum* (sweetest-scented). 3. June. Madeira. 1656.

— *subulatum* (awl-shaped-leaved). Yellow. September. China. 1842. Shrub.

— *tortuosum* (twisted). 6. June. Cape of Good Hope. 1818.

STOVE EVERGREEN CLIMBERS.

J. angustifolium (narrow-leaved). 10. E. Ind. 1816.

- J. arbore'scens* (tree-like). 12. E. Ind. 1824. Shrub.
 — *bracteatum* (large-bracted). 30. April. E. Ind. 1818.
 — *campanulatum* (bell-flowered). 4. 1812. Shrub.
 — *caudatum* (long-tailed). 10. May. Sylhet. 1838. Deciduous.
 — *dianthifolium* (dianthus-leaved). May. Deciduous.
 — *flexile* (flexible). 10. April. E. Ind. 1825.
 — *hirsutum* (hairy). 3. June. E. Ind. 1759. Shrub.
 — *latifolium* (broad-leaved). 20. June. E. Ind. 1819. Twiner.
 — *laurifolium* (bay-leaved). 4. June. E. Ind. 1819.
 — *multiflorum* (many-flowered). May. Shrub.
 — *paniculatum* (panicked). 5. January. China. 1818.
 — *revolutum* (rolled-back-flowered). 12. Yellow. June. E. Ind. 1812.
 — *Sambac* (Zambac). 6. E. Ind. 1665. Twiner.
 — *strepens* (double-flowering). 6. E. Ind. 1700.
 — *trifoliatum* (three-leaved). 6. E. Ind. 1730.
 — *scandens* (climbing). 10. August. E. Ind. 1820.
 — *simplicifolium* (simple-leaved). 3. June. South Seas. 1800.
 — *syringifolium* (lilac-leaved). April. E. Ind. 1838.
 — *trineerve* (three-nerved). 20. E. Ind. 1804.
 — *undulatum* (wavy). 5. January. China. 1819.

JATROPHA. (From *iатros*, physician, and *trophe*, food; referring to its medicinal qualities. Nat. ord., *Spurge-worts* [Euphorbiaceæ]. Linn., 21-Monæcia 10-Monadelphica.)

Cassava bread and tapioca are made from the roots, although the juice is an acrid poison. Stove evergreen shrubs, except *herbacea*. Sometimes by seed, in sandy peat, in a hotbed; cuttings of young firm shoots in sandy soil, in a brisk bottom-heat; let the bottom of the cutting be dried before inserting; sandy peat and fibry loam. Summer temp., 60° to 85°; winter, 55° to 60°.

- H. coccinea* (scarlet). 4. Scarlet. Cuba. 1824.
 — *integerrima* (most-entire. *Spicy-leaved*). 3. Scarlet. June. Cuba. 1809.
 — *multifida* (many-cleft). 3. Green. July. S. Amer. 1696.
 — *pandurefolia* (saddle-leaved). 4. Scarlet. July. Cuba. 1800.
 — *podagrica* (gouty-stalked). 1½. Orange, red. Santa Martha. 1847.

JEFFERSONIA. (Named in honour of T. Jefferson, president of the United States of North America. Nat. ord., *Berberids* [Berberidaceæ]. Linn., 8-Octandria 1-Monogynia. Allied to *Diphylleja*.)

Hardy herbaceous perennial. Seeds and division of the plant, in spring; common, sandy garden-soil.

- J. diphylla* (two-leaved). ½. White. May. N. Amer. 1792.

JERSEY THISTLE. *Centauria isardii*.

JERUSALEM ARTICHOKE (*Helianthus tuberosus*), flourishes most in a rich,

light soil, with an open exposure. Plant middle-sized tubers, or cuttings of the large ones, one or two eyes being preserved in each. Plant towards the end of March, though it may be performed in February, or even preferably in October.

Insert by the dibble in rows three feet apart each way, and four inches deep. The only attention necessary is an occasional hoeing to loosen the surface, a little of the earth being drawn up about the stems. Early in August cut the stems off about their middle, to admit more freely the air and light, and in other respects to be beneficial to the tubers.

They may be taken up as wanted during September, and in October, or as soon as the stems have withered entirely, for preservation in sand for winter's use. They should be raised as completely as possible; for the smallest piece of tuber will vegetate and appear in spring. It is for this reason that they are often allotted some remote corner of the garden; but their culinary merits certainly demand a more favourable treatment.

JERUSALEM SAGE. *Phlomis fruticosa*.

JERUSALEM THORN. *Parkinsonia aculeata*.

JET D'EAU. See **FOUNTAIN**.

JEW'S APPLE. *Solanum melongena*.

JOB'S TEARS. *Coix*.

JOLIFFIA AFRICA'NA. See **TELFARIA PEDATA**.

JONESIA. (Named after Sir W. Jones. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 7-Heptandria 1-Monogynia. Allied to *Amherstia*.)

Stove evergreens. Cuttings of ripened shoots in sand, in a brisk heat; peat and loam. Summer temp., 60° to 85°; winter, 55° to 60°.

- J. Asoca* (Asoca). 20. Orange. E. Ind. 1796.
 — *scandens* (climbing). 20. Orange. E. Ind. 1820.

JONQUILL. *Narcissus jonquilla*.

JOSSINIA. See **MYRTUS**.

JOVE'S FRUIT. *Laurus diospyros*.

JUANULLA. (Named after two Spaniards, Don G. Juan and Don Ulloa. Nat. ord., *Nightshades* [Solanaceæ]. Allied to *Lycium*.)

Stove evergreen shrubs, with orange flowers. Cuttings in sand, under a glass, in bottom-heat; rough peat; and a moist, high temperature, in a stove. *Parasitica* is considered a parasitical plant in its native country.

- J. aurantiaca* (orange). June. S. Amer. 1846.
 — *parasitica* (parasitic). 3. May. Peru. 1840.

JUDAS-TREE. *Cercis*.

JUGLANS. Walnut. (From *Jovis*, the heathen god, and *glans*, a nut. Nat. ord.,

Juglands [Juglandacæ]. Linn., 21-*Monocia* 9-*Enneandria*.)

Hardy deciduous trees, all blossoming in April. Nuts sown when gathered, or preserved until the following spring, in order to keep them from vermin; also grafting and budding the more rare species and varieties. In budding, the small, almost inconspicuous buds at the base of the year's shoot are to be chosen; deep, loamy soil. In such soils the nut should be inserted where the tree is to grow; in all poor soils it is better to be transplanted, so as to cut the tap-root, and cause the roots to feed more among the good surface-soil.

- J. cinerea* (grey. *Butter Nut*). 30. N. Amer. 1656.
- *fraxinifolia* (ash-leaved). 40. N. Amer.
- *niagra* (black). 90. N. Amer. 1629.
- *pterocarpa* (winged-fruited). 40. N. Amer.
- *regia* (common. Royal). 50. Persia. 1562.
- *lacinifolia* (cut-leaved). 50. Persia.
- *maxima* (largest-fruited). 50. Persia.
- *pendula* (weeping).
- *serotina* (late-vegetating). 50. Persia.
- *tenera* (thin-shelled). 50. Persia.

JUJUBE. *Zizyphus jujuba*.

JULUS. Snake millipede. *J. terrestris* has about 200 legs. Lead colour. Scaly, like the woodlouse. Is said to eat the roots of the pansy.

J. pulchellus.—Ochreous colour, with crimson spots down its sides. Legs, about 170. Is said to attack roots of beans, cabbages, peas, and scarlet beans.

J. complanatus.—Lilac colour. Sixty legs. Is said to eat potato-tubers. *Pulchellus* is also found in the fruit of the strawberry; but in every instance we doubt whether the plant in which the millipede is found has not first been injured by slugs, or some other cause, so that decay has commenced.

JULY-FLOWER. *Prosopis juliflora*.

JUNIPERUS. Juniper. (From the Celtic *juniperus*, rough. Nat. ord., *Conifera* [Pinacæ]. Linn., 22-*Diacia* 13-*Monadelphica*.)

Seeds, which will retain their vitality for years, and when sown, seldom vegetate under a twelvemonth, and sometimes nearer two years; cuttings in the end of summer, in a shady border, in sandy, firm soil, and covered with hand-glasses; sandy loam. The berries of the common juniper are used for flavouring gin.

HALF-HARDY EVERGREENS.

- J. Barbadiensis* (Barbadoes Cedar). 20. Florida. 1811.
- *Bermudiana* (Bermuda Cedar). 20. May. Bermudas. 1683.
- *Capeensis* (Cape). May. Mexico. 1836.
- *flaccida* (weak). May. Mexico. 1836.
- *Mexicana* (Mexican). May. Mexico. 1846.
- *tetragona* (four-angled). May. Mexico. 1836.

HARDY EVERGREENS.

- J. Chinensis* (Chinese). 10. May. China. 1804.
- *communis* (common). 5. May. Britain.
- *Canadensis* (Canadian). 20. May. Canada. 1820.
- *nana* (dwarf). 2. May. Siberia.

J. communis oblonga (oblong-fruited). June.

— *oblonga pendula* (oblong-weeping). 5. May. Britain.

— *Suecica* (Swedish). 12. May. North Europe.

— *Cracovia* (Cracow). 4. May. Poland. 1820.

— *Daurica* (Daurian). 8. July. Dauria. 1791.

— *drupacea* (drupe-fruited). 4. May. Syria. 1820.

— *exceisa* (tall). 20. Siberia. 1806.

— *glauca* (milky-green). May. China. 1814.

— *hemisphærica* (half-globe-headed). May.

Mount Etna. 1844.

— *Hermannii* (Hermann's). May.

— *Lydia* (Lycian). 10. May. South Europe. 1759.

— *macrocarpa* (large-fruited). May. Greece.

— *Neoboracensis* (Naumburg). May.

— *oblonga* (oblong). May. America. 1829.

— *oxycedrus* (sharp-cedar). 15. May. Spain. 1739.

— *Phœnicia* (Phœnician). 20. May. South Europe. 1633.

— *recurva* (bent-back). 4. May. Nepal. 1817.

— *religiosa* (religious). May.

— *sabina* (common savin). 4. May. South Europe. 1548.

— *alpina* (alpine). 1½. May. Britain.

— *cupressifolia* (cypress-leaved). 4. May. South Europe. 1548.

— *foliis variegatis* (variegated-leaved). 4. May. Europe.

— *prostrata* (prostrate). 3. May. N. Amer.

— *tamaricifolia* (tamarisk-leaved). 4. May. South Europe. 1562.

— *variegata* (variegated). 5. May. South Europe.

— *Smithii* (Smith's). May. Nepal.

— *squamata* (scaly). 4. May. Nepal. 1824.

— *thurifera* (incense-bearing). 10. May. Spain. 1572.

— *wisifera* (grape bearing). Cape Horn.

— *Virginiana* (Virginian. Red Cedar). 30. May. N. Amer. 1664.

— *Caroliniana* (Carolina). May. Carolina.

— *humilis* (humble). 12. May. N. Amer. 1800.

JUPITER'S BEARD. *Anthyllis barba-Jo'vis*.

JUPITER'S EYE AND JUPITER'S BEARD.

Sempervivum tectorum.

JUR'NEA. (Derivation not explained.

Nat. ord., *Compositæ* [Asteracæ]. Linn., 19-*Syngenesia* 1-*Æqualis*. Allied to *Serratula*.)

Hardy herbaceous perennials, with purple flowers. Seeds and division of the plant in spring; common soil.

J. spectabilis (showy). June. Europe. 1837.

— *subcavatis* (short-stemmed). June. Caucasus. 1837.

JUSSIEU'A. (Named after the celebrated botanical family of *Jussieu*. Nat. ord., *Onagradæ* [Onagracæ]. Linn., 10-*Dicandria* 1-*Monogynia*. Allied to *Ludwigia*.)

All stove aquatics, except *grandiflora*, which belongs to the greenhouse, and *frutescens*, which is a shrub, and all yellow-flowered. Cuttings, divisions, and seeds; loamy soil, in basins of water.

J. frutescens (shrubby). Yellow. June. 1824. Evergreen shrub.

— *grandiflora* (large-flowered). 1½. Yellow. August. Carolina. 1812.

— *octofida* (eight-cleft). Yellow. July. Caribbees.

- J. octovalvis* (eight-valved). Yellow. July. S. Amer.
 — *pilo'sa* (downy). Yellow. July. Caraccas. 1829.
 — *repens* (creeping). 1. Yellow. August. W. Ind. 1817.
 — *aca'bra* (rough). 4. Yellow. July. S. Amer. 1816.
 — *suffrutico'sa* (half-shrubby). 1½. Yellow. August. India. 1808.
 — *Swartzia'na* (Swartz's). Yellow. July. W. Ind. 1826.
 — *villo'sa* (shaggy). Yellow. July. E. Ind. 1826.

JUSTTICIA. (Named after *J. Justice*, a celebrated Scotch horticulturist. Nat. ord., *Acanthads* [*Acanthaceæ*]. Linn., 2-*Dian-dria* 1-*Monogynia*. Allied to *Eranthemum*.)

Annuals and biennials, by seed in a hotbed, and to be treated as tender and half-hardy annuals; many of them, and all the shrubs and herbaceous species, are easily propagated by cuttings, old shoots, and young side-shoots, striking very soon in sandy soil, under a glass, in heat, most of the leaves being allowed to remain. As they are fast growers, where room is at all valuable, young ones should be grown, and the old ones thrown away every year; peat and loam. Summer temp., 60° to 85°; winter, 48° to 55°. The following are a few of the best:—*Cocci'nea*, *ca'rnea*, *coma'ta*, *forma'sa*, *lu'cida*, *salvia'flo'ra*, and *specio'sa*.

STOVE ANNUAL AND BIENNIAL.

- J. cilia'ris* (hair-fringed). 1. White. July. W. Ind. 1780.

GREENHOUSE EVERGREEN SHRUB.

- J. pa'tula* (spreading). White. April. Cape of Good Hope. 1824.

STOVE HERBACEOUS PERENNIALS.

- J. coma'ta* (tufted). 2. Purple. July. Jamaica. 1795.
 — *echio'des* (echium-like). 1. Red. April. E. Ind. 1820.
 — *elonga'ta* (lengthened). 2. Red. May. E. Ind. 1812.
 — *gutta'ta* (large-spotted). 1½. Yellow. April. E. Ind. 1828.
 — *nemoro'sa* (grove). 2. Purple. May. W. Ind. 1795.
 — *pectora'lis* (pectoral-balsam). 3. Purple. May. W. Ind. 1787.
 — *reflexifo'ra* (bent-back-flowered). 1. Purple. June. W. Ind. 1824.

STOVE EVERGREEN SHRUBS.

- J. a'lba* (white). 2. White. June. E. Ind. 1816.
 — *ama'bilis* (lovely). Red. S. Amer.
 — *bracteola'ta* (small-bracted). 6. Purple. July. Caraccas. 1823.
 — *caly'tricha* (beautiful-haired). 2. Yellow. February. Brazil. 1824.
 — *Caracasa'na* (Caraccas). 5. Violet. May. Caraccas. 1822. Trailer.
 — *ca'rnea* (flesh-coloured). 4. Flesh. August. Rio Janeiro. 1827.
 — *Carthagine'nsis* (Carthagena). 1½. Purple. July. Carthagena. 1792.
 — *cocci'nea* (scarlet). 5. Scarlet. February. S. Amer. 1770.
 — *cuspi'da'ta* (spine-pointed). 1½. July. Arabia. 1820.
 — *ecbo'lium* (expelling). 3. Blue. June. E. Ind. 1759.
 — *forma'sa* (beautiful). 2. Purple. May. 1818.
 — *furca'ta* (forked). 5. Violet. April. Peru. 1795. Trailer.
 — *geni'ola'ta* (jointed). 2. Purple. June. W. Ind. 1820.

- J. lanceola'ta* (spear-head-leaved). 3. Red. April. E. Ind. 1818.
 — *lythospermifo'lia* (gromwell-leaved). 3. Purple. April. Peru. 1796. Trailer.
 — *lu'cida* (shining-leaved). 3. Scarlet. July. W. Ind. 1795.
 — *Macdone'llia* (Mrs. McDonell's). Yellow. November.
 — *macula'ta* (spotted). 2. Purple. June. W. Ind. 1823.
 — *nasu'ta* (large-snouted). 2. White. June. E. Ind. 1790.
 — *nodo'sa* (knotted). Red. August. Brazil. 1820.
 — *pi'cta* (painted). 8. Crimson. July. E. Ind. 1780.
 — *lu'rido sangui'nea* (lurid-blood-leaved). 8. Crimson. July. E. Ind. 1780.
 — *polystach'ya* (many-spiked). 2. Pink. June. Guiana. 1821.
 — *pu'mila* (dwarf). ½. April. S. Amer. 1820.
 — *ramosi'ssima* (most-branched). 2. Purple. June. E. Ind. 1825.
 — *Rozburghia'na* (Roxburgh's). 1. Pink. August. E. Ind. 1815.
 — *salvia'flo'ra* (sage-flowered). 4. Scarlet. July. Mexico. 1824.
 — *specio'sa* (showy). 4. Purple. August. E. Ind. 1826.
 — *thyrsifo'ra* (thyrses-flowered). 8. Scarlet. April. E. Ind. 1812.
 — *variega'ta* (striped-flowered). 2. Red. May. Guiana. 1825.
 — *ventrico'sa* (swollen). White, red. June. China. 1826.
 — *vitelli'na* (yolk-coloured). 1. Yellow. May. E. Ind. 1818.

K.

KADSU'RA. (The Japanese name. Nat. ord., *Kadsurads* [*Schizandraceæ*]. Linn., 22-*Diæcia* 12-*Polyandria*.)

A trailing half-hardy evergreen. Cuttings of half-ripened wood in sand, under a bell-glass, and in heat, in May; peat and loam.

- K. Japo'nica* (Japan). White. June. Japan. 1846.

KEMPFERIA. Galangale. (Named after *Kempfer*, a German naturalist. Nat. ord., *Gingerworts* [*Zingiberaceæ*]. Linn., 1-*Monandria* 1-*Monogynia*. Allied to *Curcuma*.)

Stove herbaceous perennials. Division of the plant as fresh growth commences; sandy loam, fibry peat, and leaf-mould. Temp., 45° to 55° when at rest; from 60° to 85° when growing.

- K. e'legans* (elegant). 1. Purple. Pegu. 1828.
 — *gala'nga* (galanga). 1. White, purple. July. E. Ind. 1738.
 — *margin'a'ta* (bordered). 1. Blue. July. E. Ind. 1822.
 — *ovalifo'ra* (oval-leaved). 1. Blue. June. Malacca. 1822.
 — *rotu'nda* (round-rooted). 1. Red, white. July. E. Ind. 1764.

KAGENE'CKIA. (Named after *Count Kageneck*, a patron of botany. Nat. ord., *Roseworts* [*Rosaceæ*]. Linn., 12-*Ioosan-dria* 2-*Pentagynia*.)

Half-hardy evergreen trees, from Chili, with white flowers. Cuttings of rather ripe shoots in sand, under a bell-glass; probably, also, by grafting on some rosaceous plant, as the Hawthorn;

loam, with a little sandy peat. Winter temp., 35° to 45°. *Cratogeomys* has stood for years against a conservative wall in the Chiswick Gardens, and produced fruit there in 1837. The male flowers are in clusters; the female flowers are solitary.

K. cratogeomys (hawthorn-like). 60. 1831.
— *oblonga* (oblong-leaved). 30. June. 1830.

KALANKO'E. (From the Chinese name of one of the species. Nat. ord., *House-leeks* [Crassulaceæ]. Linn., 8-*Octandria* 4-*Tetragynia*. Allied to *Rochea*.)

Stove succulent evergreens. Cuttings dried at their base soon root in sandy loam, in a little heat; sandy loam. Summer temp., 60° to 80°, and abundance of water when growing and flowering. Winter temp., 45° to 55°, and almost dry.

K. acutiflora (pointed-flowered). 2. White. August. E. Ind. 1806.

— *Ægyptiaca* (Egyptian). 2. Yellow. July. Egypt. 1820.

— *ceratophylla* (horn-leaved). 2. Yellow. July. China. 1820.

— *crenata* (scalloped). 2. Yellow. August. Sierra Leone. 1793.

— *lacinia* (cut-leaved). 2. Yellow. July. E. Ind. 1781.

— *rotundifolia* (round-leaved). 2. White. July. Cape of Good Hope. 1820.

— *spatulata* (spatulate). 2. Yellow. July. China. 1820.

— *varians* (variable). Yellow. July. E. Ind. 1820. See **BORECOLE**.

KALMIA. (Named after *Peter Kalm*, a Swedish botanist. Nat. ord., *Heath-worts* [Ericaceæ]. Linn., 10-*Decandria* 1-*Monogynia*. Allied to *Azalea*.)

Hardy evergreens, all from North America, and all red-flowered, except where specified. By cuttings of young shoots in sandy peat, in a shady place, under hand-lights; by layers made at the end of summer; by seeds sown in shallow pans filled with sandy peat, and kept close in a frame until the seedlings are up, pricked off when fingerable, kept close again, and gradually inured to the open air; sandy peat-soil is best, though they often thrive well in sandy loam and leaf-mould; good for forcing.

K. angustifolia (narrow-leaved). 3. June. 1736.
— *foliis variegatis* (variegated-leaved). 2. June.

— *mi'nima* (least). 2. June.

— *na'na* (dwarf). 2. June.

— *ova'ta* (egg-leaved). 2. June.

— *pu'mila* (dwarf). 2. June.

— *ro'sea* (rosy). 3. June.

— *ru'bra* (red-flowered). 3. June.

— *cuneata* (wedge-leaved). 2. White, red. June. 1820.

— *glau'ca* (milky-green). 2. Purple. April. 1767.

— *rosmarinifolia* (rosemary-leaved). 2. April. 1812.

— *hirsuta* (hairy). 4. August. 1786.

— *latifolia* (broad-leaved). 8. June. 1734.

KALOSA'NTHE. A synonyme of *Rochea*, and now erroneously applied to *Cra'ssula coccinea* and its varieties. See **RO'CHEA**.

KANGURU VINE. *O'issus antareticus*.

KARLI'NIA. (Derivation not explained. Nat. ord., *Composites* [Asteraceæ]. Linn., 19-*Syngenesia* 2-*Superflua*.)

Hardy herbaceous. Divisions of the plant in the spring; common garden-soil.

K. Caspia (Caspian). Purple. August. Caspia.

KAULFU'SSIA. (Named after *F. Kaulfuss*, M.D. Nat. ord., *Composites* [Asteraceæ]. Linn., 19-*Syngenesia* 2-*Superflua*.)

Hardy annuals. Seeds in the flower-border, in April, or in a slight hotbed, in March, and transplanted afterwards. The last method is the best.

K. aesculifolia (chestnut-leaved). Brown, yellow. June. Isle of Leyte.

— *amelloides* (amellus-like). 1. Blue. July. Cape of Good Hope. 1819.

KELP is the ash remaining after seaweed is burnt, and has been used with great advantage as a manure to potatoes, brocoli, and other species of cabbage-worts. It is composed of carbonate of soda, and iodide and bromide of potassium, carbon, sulphates of lime and magnesia, and other matters of trivial importance. See **GREEN MANURE**.

KENNE'DYA. (Named after *Mr. Kennedy*, of the firm of Lee and Kennedy, nurserymen. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 17-*Diadelphia* 3-*Decandria*.)

Greenhouse evergreen twiners, from New Holland. Cuttings of short side-shoots getting firm, in April and May, in sand, over sandy peat, under a bell-glass, kept close for a fortnight, and then put into a little extra heat; peat and sandy loam. Winter temp., 40° to 45°, and most of them like a little shade in summer. All the species, also, may be easily propagated by seeds, which, after being soaked in warm water for a few hours, may be sown in sandy soil, and placed in a hotbed.

K. coccinea (scarlet). 10. Scarlet. June. 1803.
— *Comptoniana* (Compton's). 12. Blue. April. 1803.

— *heterophylla* (variable-leaved). 4. 1824.

— *inophylla* (nerve-leaved). 4. Scarlet. June. 1824.

— *macrophylla* (large-leaved). 15. Purple. 1835.

— *Marryatta* (Mrs. Marryatt's). 4. Scarlet.

April. 1834.
— *monophylla* (simple-leaved). 10. Purple. May. 1790.

— *longiracemosa* (long-racemed). 3. Pink. 1828.

— *ni'gricans* (dark-corollaed). 3. Purple, green. March. 1832.

— *ova'ta* (egg-leaved). 6. Purple. June. 1816.

— *parviflora* (small-flowered). 4. 1824.

— *prostrata* (prostrate). 4. Scarlet. April. 1790.

— *mi'nor* (smaller). Red. June. 1836.

— *rubicunda* (red). 10. Dark red. June. Brazil. 1788.

— *sericea* (silky). 4. Scarlet. May. 1824.

— *Sterlingii* (Stirling's). 3. Scarlet. May. 1834.

KENTROPHY'LLUM. (From *kentron*, a spine, and *phyllon*, a leaf; literally, spine-leaved. Nat. ord., *Composites* [Asteraceæ]. Linn., 19-*Syngenesia* 3-*Frustranea*.)

Hardy annuals, except *arborescens*, which is a half-hardy evergreen shrub. Seed in April, but better still in a hotbed, in March, and transplanted in May. Cuttings of the young shoots of

arborescens under a hand-light, in spring; common garden-soil.

K. arborescens (shrubby). 6. Yellow. August. Spain. 1731.

— *Cretica* (Cretan). 2. White. June. Candia. 1731.

— *lanata* (woolly). 2. Yellow. July. South Europe. 1596.

— *Taurica* (Taurian). 2. Yellow. June. Caucasus. 1818.

KENTUCKY COFFEE-TREE. *Gymnocladus*.

KE'RRIA. (Named after M. Kerr, once superintendent of the Botanic Garden, Ceylon. Nat. ord., *Roseworts* [Rosaceæ]. Linn., 12-*Icosandria* 3-*Trigynia*. Allied to *Spiræa*.)

Hardy deciduous shrub, with yellow flowers, from Japan, formerly called *Corech'rus Japo'nicus*. Cuttings of the young shoots under a hand-light; layers, and division of the plant; common loam.

K. Japo'nica (Japanese). 3. Blooms through summer. 1700.

— *fl'ore-ple'no* (double-flowered). 6. June. 1700.

KIDNEY BEAN. *Phase'olus vulga'ris*.

Varieties.—There are three kinds—the *Runners*, or twining varieties; the *Dwarfs*; and the *Skinless*, or *Mange-tout*. These last, and the runners, are those most commonly cultivated, being eaten pod and seed together, whilst of others only the seeds are eaten.

Runners.—*Large Running White*, *White Long Pod*, *Dutch Case Knife*, *Long White*, or *Large White Sugar*. A good bearer, and one of the best for late use.

Sabre. Seeds white. This is, perhaps, the best of all, being a good bearer, and its pods of great length and size. This sort grows very high.

Prudhomme, or *Prodomet*. Seeds greyish, oval, and small. There is a yellow variety of this.

Prague, or *Red Pea*. Seeds round, of violet colour. A moderate bearer, and late.

Prague Bicolor. Similar to the last, seed a little larger. A good bearer, but very late.

Sophie. Like the *Prague*, but seeds whiter and larger. A moderate bearer, and late.

Small White French Runner. White seeds, oblong, and very thin. It is a good bearer, but is too tender to ripen its seeds in this country, except under a wall in a very warm situation.

Lima. Seeds very large, thick, and of a dirty white; pods large, short, slightly rough, and wrinkled. Prolific, and the seeds are very mealy; but in this climate a crop can only be obtained by forwarding the plants in a hotbed, and planting them out singly in May. It is eaten both

in a green state and shelled. It grows high.

Venetian Sugar. Resembling *Lima*, the principal difference consisting in the seeds being flatter, larger, and speckled with red. An abundant bearer, but must be used young.

Pale Turkey, or *Scarlet Runner*. Of this there are two varieties distinct from the common *Haricot*, one with scarlet, the other with white flowers; the latter is preferable for culinary purposes on account of its greater mealiness and thinner skin. There is also a third variety with two-coloured flowers, but it is not superior to either of the above. A good bearer, but not very early.

Dwarf.—*Dwarf White Dutch*, *Dutch Long Pod*, or *Early Dwarf Dutch*. Pods long, narrow, and excellent when green; seeds white, small, a little compressed. Not very early in this country.

Early White, or *Brewer's White*. Seeds white, narrow, rather long, and cylindrical. It is very dwarf, early, good for forcing, equally suited for eating green, and when the seeds are ripe.

Dwarf White Sans-parchemin forms thick, bushy plants. Good whilst green; stringless till three parts grown, and excellent when ripe.

Dwarf American White. Pod short, of a strong and branching habit, sometimes climbing a little, but generally dwarf, and not requiring support; very prolific; its short, swollen pod a little hooked, strongly coloured with reddish-brown, particularly at the two extremities; this is not in the least stringy.

Of the *Haricot Suisse* there are many varieties, of which the principal are the *White*, the *Grey*, and the *Red*.

Dwarf Black-Spotted.—Grown particularly in the Maine. The *Mohawk* from the United States.

Dwarf Red-Speckled, *Fulner's Spotted Dwarf*, and *Long-Spotted French*. These have peculiar characters, according to the length and form of their seeds. They are all excellent in a green state, for which they are chiefly used.

Dwarf Negro. Used in a green state; this rivals the Swiss varieties. This is one of the best for general use, and an abundant bearer.

Haricot Noir de Belgique. Is perfectly dwarf, and is the earliest which we are yet acquainted with. Its pods, although rather pale, are very good in a young state.

Crimson Runner. Highly esteemed for stewing when ripe; seeds red, flat, and small.

Flat Yellow Canada. The most dwarf, and one of the earliest skinless, and therefore either good when young, or when full grown; seeds nearly round, pale yellow, very good when dried. A good bearer.

Polish Beans. A prolific sort, excellent either fresh-shelled or dried; seeds rather large, roundish, and sulphur-coloured. There is a sub-variety of it with clear, bronze-coloured seeds, which also appears to be good. A good bearer, and early.—*Gard. Chron.*

Soil and Situation.—A very light, mellow, well-drained loam. For the early and late crops, a sheltered border must always be allotted, or in a single row about a foot from a south fence, otherwise the situation cannot be too open.

Sowing commences with the year. They may be sown towards the end of January in pots, and placed upon the flue of the hothouse, or in rows in the mould of a hotbed, for production in March, to be repeated once every three weeks in similar situations in February and March, for supplying the table during April; a small sowing may be made, if fine open weather, under a frame without heat, for removal into a sheltered border early in May. The chief requisite for success in the hothouse is to have them near the glass; to keep them well watered; the air moist, and ventilated as much as the season permits.

During May, and thence until the first week in August, sowings may be made once every three weeks. In September, forcing recommences, at first merely under frames without bottom-heat; October, and thence to the close of the year, in hotbeds, &c., as in January. Sowing, when a removal is intended, should always be made in pots, the plants being less retarded, as the roots are less injured, than when the seed is inserted in patches or rows in the earth of the bed. It is a good practice, likewise, to repeat each sowing in the frames without heat after the lapse of a week, as the first will often fail, when a second, although after so short a lapse of time, will perfectly succeed. In every instance the seed is buried one and a half or two inches deep. The rows of the main crops to be two feet apart, the seed being inserted either in

drills or by the dibble, four inches apart; the plants, however, to be thinned to twice that distance. If a vacancy occurs, it may always be filled by plants which have been carefully removed by the trowel from where they stood too thick. The seed inserted during the hottest period of summer should be either soaked in water for five or six hours, laid in damp mould for a day or two, or the drills be well watered previously to sowing.

The pods of both kinds are always to be gathered while young; by thus doing, and care being had not to injure the stems in detaching them, the plants are rendered prolific and long lived.

Forcing.—The hotbed must be of moderate size, and covered with earth nine inches thick. When the heat has become regular, the seed may be inserted in drills a foot apart, and the plants allowed to stand six inches asunder in the rows. Air must be admitted as freely as to the melon. The same precautions are likewise necessary as to keeping up the temperature, taking the chill off the water, &c., as for that plant. When the seed begins to sprout, the mould should be kept regularly moistened; and when grown up, water may be given moderately three times a week. The temperature should never be less than 60°, nor higher than 75°.

Those sown under frames in March for transplanting into a border, when two or three inches in height, must, in a like manner, be hardened gradually for the exposure, by the plentiful admission of air, and the total removal of the glasses during fine days. If any are raised in pots in the hothouse, they must be prepared similarly for the removal, by setting them outside in fine days, and there watering them with cold water.

If the season is too ungenial to remove them even to a warm border, the plants are often inserted in patches, to have the protection of frames or hand-lights at night, or as the weather demands.

Runners.—As these are more tender, and the seed is more apt to decay, than those of the dwarfs, no open-ground crop must be inserted before early in May, to be continued at intervals of four weeks through June and July, which will insure a supply from the middle of this last month until October.

They are so prolific and such permanent bearers, that three open-ground

sowings of a size proportionate to the consumption, will, in almost every instance, be sufficient.

They are inserted in drills, either singly, three feet apart, or in pairs ten or twelve inches asunder, and each pair four feet distant from its neighbour. The seed is buried two inches deep, and four apart in the rows, the plants being thinned to twice that distance.

If grown in single rows, a row of poles must be set on the south side of each; being fixed firmly in the ground, they may be kept together by having a light pole tied horizontally along their tops, or a post being fixed at each end of a row, united by a cross bar at their tops: a string may be passed from this to each of the plants. If the rows are in pairs, a row of poles must be placed on each side, so fixed in the ground that their summits cross, and are tied together.

If the runners are nipped off as fast as they appear, the plants become bushy, and are nearly as prolific as if allowed to climb.

To obtain Seed.—Forty or fifty plants of the dwarf kinds, or thirty of the runners, will be sufficient for a moderate-sized family. They must be raised purposely in May, or a like number from the crop in that month left ungathered from; for the first pods always produce the finest seeds, and ripen perfectly. In autumn, as soon as the plants decay, they must be pulled up, thoroughly dried, and stored in the pods.

KIELME'YERA. (Named after a German patron of botany. Nat. ord., *Theads* [Ternströmiaceæ]. Linn., 13-*Polyandria* 1-*Monogynia*.)

Stove evergreen tree. Cuttings of young shoots getting firm, in sand, under a bell-glass, and in heat; fibry, sandy loam. Summer temp., 60° to 75°; winter, 45° to 55°.

K. excel'sa (tall). 60. White. July. Brazil. 1833.

KIRGANE'LIA. (Derived from the Malabar name. Nat. ord., *Spurge-worts* [Euphorbiaceæ]. Linn., 21-*Monæcia* 10-*Monadelphica*.)

Stove evergreen shrub. Cuttings of ripe shoots in sand, under a bell-glass, in a strong, moist bottom-heat; fibry loam and sandy peat. Summer temp., 60° to 85°; winter, 55° to 60°.

K. e'legans (elegant). 6. July. Mauritius. 1820.

KITCHEN-GARDEN.

Situation.—A gentle declination towards the south, with a point to the east, is the most favourable aspect; to the north-east the least so: in short, any

point to the south is to be preferred to one verging towards the north. A high wall should inclose it to the north and east, gradually lowering to the south and west. If, however, a plantation or building on the east side, at some distance, shelter it from the piercing winds which blow from that quarter, and yet are at such a distance as not to intercept the rays of the rising sun, it is much to be preferred to heightening the wall. It is a still greater desideratum to have a similar shelter, or that of a hill on the south-west and north-west points. The garden is best situated at a moderate elevation; the summit of a hill or the bottom of a valley is equally to be avoided. It is a fact not very difficult of explanation, that low-lying ones are the most liable to suffer from blights and severe frosts; those much above the level of the sea are obviously most exposed to inclement winds.

Size.—To determine the appropriate size of a kitchen-garden is impossible. It ought to be proportionate to the size of the family, their partiality for vegetables, and the fertility of the soil.

It may serve as some criterion to state, that the management of a kitchen-garden occupying the space of an acre affords ample employment for a gardener, who will also require an assistant at the busiest periods of the year. In general, a family of four persons, exclusive of servants, requires a full rood of open kitchen-garden.

KLEINHO'VIA. (Named after *Mr. Kleinhoff*, a Dutch botanist. Nat. ord., *Byttneriads* [Byttneriaceæ]. Linn., 16-*Monadelphia* 7-*Dodecandria*. Allied to *Theobroma*.)

Stove evergreen tree. Cuttings of ripe young shoots in sand, under a bell-glass, in heat; peat and loam. Summer temp., 60° to 90°; winter, 50° to 60°.

K. ho'spita (stranger). 20. Pink. Constant. *Moluccas*. 1800.

KNI'GHTIA. (Named after *J. A. Knight*, late president of the London Horticultural Society. Nat. ord., *Proteads* [Proteaceæ]. Linn., 4-*Tetrandria* 1-*Monogynia*. Allied to *Grevillea*.)

Greenhouse evergreen tree. Cuttings of ripe shoots, with all the leaves on, except a few at the base of the cutting, in sandy soil, under a bell-glass, and removed in a few weeks into a mild bottom-heat; peat, with a little sandy loam, and a few broken potsheers. Winter temp., 35° to 45°. In summer the pots should be shaded.

K. excel'sa (lofty). 10. Flesh. New Zealand. 1824.

KNIGHT'S STAR. *Hippeastrum*.

KNOL-KOHL, or **KOHL-RUBI** (*Bra'ssica caul'o-ra'pa*), the Turnip-stemmed Cabbage. It is sometimes called, also, the Cape Cabbage. The stem is thick, rises about eight inches out of the ground, is swollen into a globular form, very like a large Swedish turnip growing above ground, and is crowned with leaves, slightly scoloped on the edges, undulated, and milky-green, like those of the turnip we have mentioned. There are several varieties of it; but the green-stemmed and the purple-stemmed (especially the latter) are to be preferred.

It is sweeter, more nutritious, and more solid than either the Cabbage or White Turnip; will produce a greater weight per acre than the turnip, and prefers a heavier soil than that root; is hardier, and keeps better than any other bulb; and imparts very little of that flavour, either to milk or butter, known as *turnipy*. So much relished is it both by cows and sheep, that they will leave either turnips or cabbages to partake of it. Hares and rabbits are so fond of it, that where they abound, Knol-kohl can scarcely be grown. It is excellent when boiled for table. Sow in the first week of March, and plant out in June in rows four feet apart, if the soil is fertile, but only three feet if the soil is less productive, and three feet from plant to plant in the rows. The plants must have the chief part of their stems left uncovered by the soil. Two pounds of seed produce enough plants for an acre. It is an excellent crop for cleaning the soil, as the width between the plants and rows enables the hoe to be efficiently used, and during a lengthened period. When blanks occur, these may be filled up from the seed-bed with fresh plants. The produce is from eighteen to twenty tons, and upwards, per acre. The bulbs may be kept sound and nutritious until very late in the spring, even much later than the Swedish turnip.

KNO'XIA. (Named after *R. Knox*, a traveller, long resident in Ceylon. Nat. ord., *Cinchonads* [Cinchonaceæ]. Linn., 4-*Tetrandria* 1-*Monogynia*.)

Stove evergreens. Cuttings of young shoots in sand, under a glass, in April or May; peat and loam. Summer temp., 60° to 85°; winter, 50° to 60°.

*K. exse'rt*a (outside-stamened). White. June. Ceylon. 1828.

— *la'vis* (smooth). Pink. July. Bengal. 1818.

— *Sumat'rensis* (Sumatran). White. July. E. Ind. 1818.

K. te'res (cylindrical-stemmed). White. July. E. Ind. 1820.

— *Zeyla'nica* (Ceylon). †. White. July. Ceylon. 1826.

KÖELREUTE'RIA. (Named after *Köelreuter*, a celebrated German botanist, the father of hybridizing plants. Nat. ord., *Soapworts* [Sapindaceæ]. Linn., 8-*Oc-tandria* 1-*Monogynia*.)

Hardy deciduous tree. Cuttings of the root; cuttings of the young shoots under a hand-light; seeds in spring; layers in the end of summer; common soil, in a sheltered situation; beautiful in its leaves, flowers, fruit, and the mode of growing, as it gets old.

K. panicula'ta (panicked). 10. Yellow. July. China. 1763.

KOHL-RABI or **RUBI**. See **KNOL-KOHL**.

KÉ'NIGA. See **GLY'CE**.

KO'PSIA. (Named after *Professor Kops*. Nat. ord., *Dogbanes* [Apocynaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Cerbera*.)

Stove evergreen shrub. Cuttings of the young shoots, getting a little firm at their base, in sand, over sandy soil, and in bottom-heat; peat and sandy loam. Summer temp., 60° to 85°; winter, 50° to 60°.

K. frutico'sa (shrubby). Red. May. Pegu. 1818.

KRAME'RIA. (Named after the two *Kramers*, German botanists. Nat. ord., *Milkworts* [Polygalaceæ]. Linn., 14-*Didynamia* 2-*Angiospermia*.)

This is the intensely-astringent called *Rhatany-root* in South America. Stove evergreen shrub. Cuttings in sand, under a glass, in heat; sandy loam and fibry peat. Summer temp., 60° to 90°; winter, 48° to 60°.

K. pauciflo'ra (few-flowered). 4. Red. Mexico. 1824.

KREYSI'GIA. (Named after *Kreysig*, a German botanist. Nat. ord., *Melanths* [Melanthaceæ]. Linn., 6-*Hexandria* 1-*Monogynia*. Allied to *Uvularia*.)

Greenhouse herbaceous perennial. Division of the plant in spring; light, sandy loam; requires the protection of a cold pit, or a cool greenhouse, in winter.

K. multiflo'ra (many-flowered). 1. Rose. June. N. S. Wales. 1823.

KU'HNIA. (Named after *Adam Kuhn*, an American botanist. Nat. ord., *Compositae* [Asteraceæ]. Linn., 19-*Syngenesia* 1-*Æqualis*. Allied to *Liatris*.)

Herbaceous perennials. Divisions in spring; sandy loam. Pretty little plants; the tenderest require a cold pit, or a greenhouse, in winter.

HARDY.

K. Crito'nia (Critonia). 1½. White. July. N. Amer. 1816.

— *Eupatorioides* (Eupatorium-like). 1½. White. July. N. Amer. 1812.

GREENHOUSE.

K. linearifolia (narrow-leaved). Brazil. 1829.
— *rosmarinifolia* (rosemary-leaved). White.
July. Cuba. 1828.

KU'NTHIA. (Named after *C. S. Kunth*, a Prussian botanist. Nat. ord., *Palms* [Palmaceæ]. Linn., 21-Monæcia 6-Hexandria. Allied to *Arceca*.)

Stove Palm. Seeds, in hotbed; rich loam. Summer temp., 60° to 90°; winter, 55° to 60°.

K. montana (mountain). 10. Grenada. 1829.

KY'DIA. (Named after *Col. Kyd*, first director of the Calcutta Botanic Garden. Nat. ord., *Byttneriads* [Byttneriaceæ]. Linn., 16-Monadelphica 7-Dodecandria. Allied to *Dombeya*.)

Stove evergreen trees, with white flowers. Cuttings of half-ripened shoots in sand, under a bell-glass, and in heat; sandy peat and fibry loam, well-drained. Summer temp., 60° to 85°; winter, 50° to 60°.

K. calycina (large-calyxed). 30. E. Ind. 1818.
— *fraterna* (brotherly). 40. E. Ind. 1823.

L.

LABEL. Many are the forms and substances employed in making labels for plants. For general use they should embrace among their good qualities cheapness, durability, facility of being written upon, and legibility. We have before us specimens in zinc, porcelain, and gutta percha; but most of them are deficient in some one or more of the desirable qualities. The least objectionable are those of zinc, made by Mr. S. Rooke, jun., 7, Whittall-street, Birmingham, and may be had at prices varying from 15s. to 40s. per 1000. They are written upon with an ink of which the recipe has been given in *The Cottage Gardener*; but the letters are indelible, so that when a label has been written upon it cannot be employed for a second plant. This makes us prefer a small piece of deal, planed smooth, painted white, and written upon with a lead pencil. If fastened to the



plant by a shred of thin lead the label retains any desired position. When required for a seed-bed, a small stake is to

be driven into the ground, and from it the label to be suspended.

LABICHE'A. (Named after *M. Labiche*, a French officer. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 10-Decandria 1-Monogynia. Allied to *Cassia*.)

Yellow-blossomed greenhouse evergreen shrubs, from Swan River. Cuttings of half-ripened shoots in summer, in sand, under a bell-glass; peat and loam. Winter temp., 35° to 45°.

L. bipunctata (two-dotted). 3. April. 1843.
— *lanceolata* (spear-head-leaved). 4. April. 1837.

LA'BLAB. (The Arabic name of the convolvulus; referring to the twining habit. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 17-Diadelphica 4-Decandria. Allied to *Dolichos*.)

Greenhouse and stove deciduous climbers and twiners. By cuttings of young shoots in spring, in sandy soil, and in a little heat; peat and loam. Temperature, what is usual for greenhouse and stove.

L. pereannans (lasting. *White China*). 8. White.

July. China. 1820. Greenhouse.

— *vulgaris* (common). 8. Violet. July. E.

Ind. 1794. Stove.

— *albiflora* (white-flowered). White. August. E. Ind. 1800.

— *purpurea* (purple). July. E. Ind. 1790.

There are also several annuals.

LABRADOR TEA. *Le'dum*.

LABURNUM. *Cytisus laburnum*.

LABYRINTH is an arrangement of walks, inclosed by hedges or shrubberies, so intricate as to be very difficult to escape from. From the twelfth century to the end of the seventeenth they were a very favourite portion of English pleasure-ground; but they are now more judiciously banished.

LACÆ'NA. (One of the names of *Helen*. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-Gynandria 1-Monandria. Allied to *Govenia*.)

Divisions in spring, or after blooming; turfy peat, sphagnum, rotten wood, charcoal, and broken crocks; fixed to a block, and that built above the surface of a pot, and packed with the above material, or grown in a shallow, open basket. Summer temp., 60° to 90°, and moist; winter, 55° to 60°, and dry.

L. bicolor (two-coloured). 1. Greenish-yellow. May. Guatemala. 1843.

LACE-BARK. *Lage'tta*.

LACHENA'LIA. (Named after *M. de la Chenal*, a botanical author. Nat. ord., *Lilyworts* [Liliaceæ]. Linn., 6-Hexandria 1-Monogynia. Allied to *Triteleja*.)

All greenhouse bulbs, from the Cape of Good Hope, except *glauca*. Offsets at potting period, and seeds in a hotbed, in spring; sandy peat, with a little fibry loam. Winter temp., 35° to 45°, and dry, or the bulbs may be kept in drawers or bags. They are very beautiful little plants, and grow

freely under the above conditions, potting them whenever growth commences, and watering so long as the leaves are green, but no longer; when the pots are full of roots they stand gentle forcing. The small species require sand round their bulbs, whether in the border or pots.

- L. angustifolia* (serpent). 1. White. April. 1825.
- *angustifolia* (narrow-leaved). 1. White. April. 1793.
- *bifolia* (two-leaved). $\frac{1}{2}$. Pink. April. 1813.
- *contaminata* (contaminated). $\frac{1}{2}$. Pink. March. 1774.
- *flava* (yellow). $\frac{1}{2}$. Yellow. May. 1790.
- *fragrans* (sweet-scented). 1. White, red. April. 1798.
- *glauca* (milky-green). Purple, red. May. Persia. 1825.
- *glauca* (milkyish-green). 1. Green, white. May. 1795.
- *hyacinthoides* (hyacinth-like). $\frac{1}{2}$. White, red. May. 1812.
- *isoptala* (equal-petaled). $\frac{2}{3}$. White, purple. May. 1804.
- *lancofolia* (spear-head-leaved). $\frac{1}{2}$. White, green. May. 1818.
- *liliflora* (lily-flowered). $\frac{1}{2}$. White. May. 1825.
- *lucida* (glossy-leaved). $\frac{1}{2}$. Pink. April. 1798.
- *lutola* (yellowish). 1. Yellow, red. March. 1774.
- — *maculata* (spotted-leaved). 1. Yellow, red. March. 1774.
- *mutabilis* (changeable). $\frac{1}{2}$. Blue. November. 1825.
- *nervosa* (nerved-leaved). $\frac{2}{3}$. Pink. June. 1810.
- *orchitoides* (orchis-like). 1. Green, white. March. 1752.
- *paludosa* (pale-flowered). $\frac{1}{2}$. Pale blue. May. 1782.
- — *caruleascens* (bluish). $\frac{1}{2}$. Bluish. September. 1782.
- — *minor* (smaller). $\frac{1}{2}$. Pale blue. 1782.
- *patula* (spreading-flowered). $\frac{2}{3}$. White, pink. April. 1795.
- *pendula* (weeping). $\frac{2}{3}$. Red, yellow. April. 1789.
- — *maculata* (spotted-leaved). $\frac{1}{2}$. Red, yellow. April. 1789.
- *punctata* (dotted). $\frac{1}{2}$. Purple. May. 1824.
- *purpurea* (purple). $\frac{1}{2}$. Purple. April. 1826.
- *purpureo-carulea* (purplish-blue). 1. Purple. April. 1789.
- *pusilla* (small). $\frac{1}{2}$. White. June. 1825.
- *pusillata* (blistered). 1. Purple, green. February. 1790.
- *quadricolor* (four-coloured). 1. Scarlet, yellow. March. 1774.
- — *colorata* (coloured-leaved). $\frac{1}{2}$. Scarlet, yellow. April. 1774.
- *racemosa* (racemed). $1\frac{1}{2}$. White, green. May. 1811.
- *rosea* (rosy). 1. Pink. May. 1800.
- *rubida* (red-dotted-flowered). $\frac{2}{3}$. Red. September. 1803.
- *serotina* (late). $\frac{2}{3}$. Pink. August. 1820.
- *sessiliflora* (stalkless-flowered). $\frac{1}{2}$. Red. May. 1804.
- *tricolor* (three-coloured). 1. Red, yellow. April. 1774.
- *unicolor* (one-coloured). $\frac{1}{2}$. Pink. May. 1806.
- *viridiflora* (one-flowered). White, blue. March. 1795.
- *violacea* (violet). 1. Violet. March. 1795.

LACHNEA. (From *lachne*, down; re-

ferring to the downy clothing of the flower-heads. Nat. ord., *Daphnads* [Thymelacæ]. Linn., 8-*Octandria* 1-*Monogynia*. Allied to *Gnidia*.)

Greenhouse evergreen shrubs, from the Cape of Good Hope, and all but one white-flowered. Cuttings of short young shoots in sand, under a bell-glass, in spring; sandy peat, with a little fibry loam. Winter temp., 35° to 45°. In summer, a sheltered, somewhat shady place.

- L. buxifolia* (box-leaved). 2. May. 1800.
- *conglomerata* (clustered). 2. June. 1773.
- *eriocephala* (woolly-headed). 2. June. 1793.
- *glauca* (milky-green). 2. June. 1800.
- *purpurea* (purple-flowered). 2. Purple. April. 1800.

LACHNA'NTHE. (From *lachne*, down, and *anthos*, a flower. Nat. ord., *Bloodroots* [Hæmodoracæ]. Linn., 3-*Triandria* 1-*Monogynia*. Allied to *Anigozanthos*.)

Half-hardy herbaceous perennial. The red colour found in the roots is used in dyeing in North America. Division of the roots in spring; peat and loam. Winter temp., 40°.

- L. tinctoria* (dyer's). $1\frac{1}{2}$. Pink. July. N. Amer. 1812.

LACKEY MOTH. *Olisiocampa*.

LACTUCA. Lettuce. (From *lac*, milk; referring to the milky juice. Nat. ord., *Compositæ* [Asteracæ]. Linn., 19-*Syngenesia* 1-*Equalis*.)

Of the numerous species none need be mentioned but the common lettuce, which is a hardy annual.

- L. sativa* (cultivated). 4. Yellow. June. 1562.

Varieties.—There are the Cos and the Cabbage; the first more grown in summer than in winter; the second at all seasons, but more usually in winter, on account of their superior hardihood. The Cilies are of a nature intermediate the two. When young, the Cabbage varieties are, in general, sweeter than those of the Cos at the same age; but of a full growth this is reversed. Hence the latter are preferred for salads, and the former for soups. The Cabbage varieties succeed better in a hotbed than the Cos.

Cos Varieties.—Brighton, Silver, Black-seeded Green, Spotted, or Leopard, Early Egyptian, Green and Brown Cilicia, Green, Lop, White, or Versailles, White Paris Cove, the finest summer kind; Green Paris Cove, rather hardier; Bath Cos, and Brown Cos.

Cabbage Varieties.—Drum-headed, Princes, Brown Dutch and Common White Dutch, both good for winter; Tennis Ball, or Button, good for winter; Large White, Hardy Green, or Capuchin, good for winter; Imperial Grand Ad-

mirable, Prussian, Large Roman, Malta, for summer; Neapolitan, for summer.

Soil.—Lettuces thrive best in a light, very rich soil, with a dry substratum. For the first and last crops of the year a warm, sheltered situation is required; but for the Midsummer ones, a border that is shaded during mid-day.

Sowing.—The first sowing in a frame on a warm border, or slender hotbed, at the close of January, or early in February; at the close of this last month a larger one in any open situation, and smaller repeated once every three weeks, until the end of July, for summer and autumn use, to be continued at similar intervals until the close of September, for winter and early spring. Sow moderately thin, each variety separate.

Pricking out.—When the plants are about a month old, or two inches in height, thin them to three or four inches apart, and prick out those removed at similar distances. Those from the sowings in January and February in frames, and thence until August, in any open situation. Those of the August sowing must be divided into two portions; the largest being selected and planted in an open compartment for late autumn use, and the smaller on a warm border for winter and early spring.

Plant out, finally, in rows a foot apart each way. At the time of every removal, whether of pricking out or planting, water must be given moderately, and until the plants are rooted. It may be remarked, that transplanted lettuces never attain so fine a growth as those left where sown, nor become so soon fit for use; those which are planted out at once to remain being better in these respects than those pricked out previous to final planting. The varying in their time of becoming fit for use, however, is of advantage, as by these means a more perfect succession is obtained. Those which are planted to withstand the winter, which they easily do if sheltered with hoops and matting during severe weather, and continue in a fit state for use, are best planted on ridges, as a protection from excessive wet, from which they always suffer. In every stage of growth they must be kept well watered, and the earth around them frequently stirred, for the extirpation of slugs and snails. No vegetable is more benefited than the lettuce by the application, occasionally, of liquid-manure. To

check the Cos plants running to seed before the heart is perfectly blanched, it is a good practice, at the time of tying them up, to cut out the centre bud of each with a sharp knife.

Frame Crops.—The plants raised from the September sowing may be divided as directed for those of August; but, in addition, some of the Cos varieties may be planted on a warm border, to have the shelter of frames and hand-glasses. Some of the strongest of these may, in succession during November, December, and January, be planted in a moderate hotbed, being removed with as little injury as possible to the roots, to bring them forward for immediate use. Whilst in frames they require much attention. Being watered and shaded until established, they must afterwards have as much light and air admitted as possible, as well as a regular supply of moisture.

At night the additional shelter of matting, and in severe weather an increased covering, must be afforded. The day temperature should never exceed 80°; nor fall below 65°. The plants may be set in rows about six inches apart; but of those which are merely sheltering during the winter, on the return of mild weather, at the beginning of March or April, every second one must be carefully removed, and planted in a warm border at the usual open-ground distance.

To obtain Seed.—Some of the finest and most perfect plants of each variety that have survived the winter, or from the forwardest sowing of the year, should be selected. The seed from any that have run up prematurely cannot be depended upon. If two varieties flower near each other, only mongrel varieties will be obtained. Each stem is to be tied to a stake as a support against tempestuous weather. The branches must be gathered as the seed ripens upon them. It must be thoroughly dried before it is stored.

LADY-BIRD. *Coccine'lla.*

LADY'S FERN. *Lastræ'a thelypteris.*

LADY'S LACES. *Aru'ndo.*

LADY'S MANTLE. *Alchemi'lla.*

LADY'S SLIPPER. *Cypripè'dium.*

LADY'S SMOCK. *Cardamine.*

LADY'S TRESSES. *Neottia spiræ'lis* and *Spiranthes.*

LÆLIA. (*Lælia* was a Vestal virgin; alluding to the delicacy of the flower. Nat. ord., *Orchids* [Orchidacææ]. Linn.,

20-Gynandria 1-Monandria. Allied to Epidendrum.)

Stove orchids. Divisions; turfy peat, chopped old moss, and charcoal, raised above the surface of a pot, filled with drainage, or a block of wood firmly laid across. Treatment similar to Cattleya.

- L. acuminata* (pointed-lipped). 2. Pinkish-white. June. Mexico. 1840.
- *albida* (whitish). Yellowish-white. Oaxaca. 1838.
- *viola'cea* (violet-lipped). White, violet.
- *anceps* (two-edged-scolloped). 1½. Rose, purple. December. Mexico.
- *Barkeriana* (Barker's). 1½. Purple. December. Mexico. 1833.
- *autumnalis* (autumnal). 3. Rosy. September. Mexico. 1836.
- *carule'scens* (bluish). Costa Rica. 1838.
- *candida* (white-flowered). White. June. Bolanos. 1840.
- *cinnabari'na* (scarlet-flowered). 2. Reddish. May. Brazil. 1836.
- *erythrobul'bon* (red-bulbed). Brazil. 1843.
- *epidendroi'des* (epidendrum-like). Purple, crimson. July. Brazil. 1839.
- *flava* (yellow). Yellow. Mexico. 1841.
- *furfura'cea* (scurfy-stalked). 1½. Rose. November. Mexico. 1838.
- *grandifl'ra* (large-flowered). 1. Xalapa.
- *Lindentii* (Linden's). Pale rose. June. Cuba.
- *maja'litis* (May-flowering). ¾. Pink, purple. Mexico. 1838.
- *peduncula'ris* (long-flower-stalked). Violet. Mexico. 1841.
- *Perrin'sii* (Perrin's). Lilac. September. Brazil. 1831.
- *purpura'scens* (purplish). Pink. September. Brazil. 1838.
- *rube'scens* (blushing). ¾. Cream, pink. May. Mexico. 1840.
- *rupe'stris* (rocky). Violet. Brazil. 1840.
- *super'biens* (gorgeous-flowered). 1. Pink, crimson. November. Guatemala. 1840.

LAFOE'NSIA. (Named in honour of the Duke of Lafoens, president of the Lisbon Academy of Science. Nat. ord., *Loosestrifis* [Lythraceæ]. Linn., 12-*Loosandria* 1-*Monogynia*. Allied to *Lagerstroemia*.)

A stove shrub. Cuttings of rather ripe wood in autumn, in sand, and in bottom-heat; peat and loam. Summer temp., 60° to 90°; winter, 50° to 55°, and kept rather dry. Prune freely in winter.

- L. microphy'lla* (small-leaved). Brazil. 1847.

LAGA'SCA. (Named after D. M. Lagasca, professor of botany at Madrid. Nat. ord., *Composites* [Asteraceæ]. Linn., 19-*Syngenesia* 1-*Æqualis*.)

Stove annual. Raised in a hotbed, several times potted there, and bloomed in summer, in a greenhouse or plant stove.

- L. mol'lis* (soft). 2. White. July. S. Amer. 1815.

LAGENA'RIA. Bottle Gourd. (From *lagna*, a bottle; referring to the shape of the fruit of some species. Nat. ord., *Cucurbits* [Cucurbitaceæ]. Linn., 21-*Monæcia* 10-*Monadelphica*. Allied to *Cucumber*.)

Hardy annuals, from the East Indies, and yellow-flowered, except where otherwise specified. Seeds in a hotbed, and either fruited there, or hardened off and cultivated out of doors, under hand-lights, against palings and other fences; rich, light soil. For culture, see *CUCUMBER*.

- L. idola'trica* (idolatrous. Pear-fruited). White. June.
- *vitta'ta* (banded). White. June.
- *vulga'ris* (common). 10. August. 1597.
- *clava'ta* (club-shaped). 10. August. 1597.
- *depre'ssu* (depressed). 10. August. 1597.
- *courgou'rda* (courgourde). 10. August. 1597.
- *turbina'ta* (top-shaped). 10. August. 1597.

LAGENO'PHORA. (From *lagenos*, a bottle, and *phoros*, to bear; referring to the flower-heads. Nat. ord., *Composites* [Asteraceæ]. Linn., 19-*Syngenesia* 3-*Frustranea*. Allied to *Brachycome*.)

Greenhouse herbaceous perennial. Division in spring; light soil; a cool greenhouse, or a dry, cold pit in winter.

- L. Forsteri* (Forster's). Yellow and purple. New Zealand. 1837.

LAGERSTRO'EMIA. (Named after M. Lagerström, a German. Nat. ord., *Loosestrifis* [Lythraceæ]. Linn., 13-*Polyandria* 1-*Monogynia*.)

Cuttings of small, firm side-shoots in spring, under a bell-glass, and cuttings of ripened shoots in autumn, in strong bottom-heat; peat and loam. Summer temp., 60° to 90°, with plenty of moisture, both at the root, and also at the top, except when in flower. Winter temp., 55° to 60°, and dryish, after being pruned in autumn. The greenhouse species require only warm greenhouse temperatures.

GREENHOUSE EVERGREEN SHRUBS.

- L. India'ca d'lba* (Indian-white). 12. White. August. China. 1816.
- *ro'sea* (rosy). 12. Rose. August. China. 1825.
- *specio'sa* (showy). Rose. August. China. 1826.

STOVE EVERGREEN SHRUBS.

- L. elegans* (elegant). 10. Rose, yellow. August. E. Ind. 1841.
- *grandifl'ra* (large-flowered). 12. Red. July. E. Ind. 1818.
- *India'ca* (Indian). 6. Flesh. July. E. Ind. 1759.
- *parvifl'ra* (small-flowered). 12. White. E. Ind. 1818.
- *regi'næ* (queen's). 12. Red. E. Ind. 1792.

LAGET'TA. Lace Bark. (Its Indian name. Nat. ord., *Daphnads* [Thymelaceæ]. Linn., 8-*Octandria* 1-*Monogynia*.)

The inner bark of this stove evergreen is the beautiful Lace Bark of the West Indies. Cuttings of half-ripened shoots in sand, under a glass, and in bottom-heat, in April or May; peat and fibry loam. Summer temp., 60° to 80°; winter, 45° to 55°.

- L. linta'ria* (linen). 6. White. Jamaica. 1798.

LAGUNA'RIA. (From its resemblance to *Lagunæa*, an allied genus. Nat. ord., *Malhouworts* [Malvaceæ]. Linn., 16-*Monadelphica* 8-*Polyandria*.)

Greenhouse evergreen shrubs. By cuttings of

half-ripened shoots in sand, under a glass, and in heat, in May; peat and loam. Winter temp., 40° to 45°.

L. cuneifolrmis (wedge-leaved). 15. Red. June. Australia.

— *lilacina* (lilac). Lilac. June. Swan River. 1832.

— *Patersonii* (Paterson's). 20. Pale red. June. Norfolk Island. 1792.

LAL'AGE. (Named after *Lalage*, a gay, witty dame immortalized by Horace. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 16-*Monadelphina* 6-*Decandria*. Allied to *Platylobium*.)

Greenhouse evergreen shrubs, from New Holland. Cuttings of the young shoots when they are getting firm; seeds in a slight, sweet hotbed, and seedlings gradually hardened; sandy peat, with a little fibry loam, broken crocks, and charcoal, and extra draining; in summer, a very airy greenhouse. Winter temp., not below 45°.

L. Hoveaefolia (Hovea-leaved). 2. Yellow, orange. March. 1841.

— *ornata* (gay). 2. Yellow, purple. April. 1830.

LAMBE'RTIA. (Named after the late Mr. Lambert, a distinguished patron of botany. Nat. ord., *Proteads* [Proteaceæ]. Linn., 4-*Tetrandria* 1-*Monogynia*. Allied to *Hakea*.)

Greenhouse evergreen shrubs, from New Holland. Cuttings of the ripened shoots, before fresh growth commences, in the spring, in sand, over sandy peat, in pots nearly filled with drainage, and covered with a bell-glass, and kept close and cool until the base of the cutting swells, when a little bottom-heat may be applied; sandy loam and fibry peat, well-drained, and mixed with rough pieces of charcoal. Winter temp., 38° to 45°.

L. echinata (hedgehog). 3. July. 1824.

— *formosa* (handsome). 4. Red. July. 1788.

— *longifolia* (long-leaved). 4. Red. July. 1826.

— *multiflora* (many-flowered). Orange.

— *ovalifolia* (oval-leaved). 1836.

— *propinqua* (related). 1830.

LAMB'S LETTUCE. See CORN SALAD.

LAMOUROUXIA. (Named after J. V. F. Lamouroux, a naturalist. Nat. ord., *Figworts* [Scrophulariaceæ]. Linn., 14-*Didynamia* 2-*Angiospermia*. Allied to *Bartsia*.)

Greenhouse herbaceous perennials, scarlet-flowered, from Mexico. For culture, see *ANGELONIA*.

L. cordata (heart-shaped-leaved). 1½. 1846.

— *multifida* (many-cleft-leaved). 1½. 1846.

LAMPWICK. *Phloxis lychmatis*.

LANCE-WOOD. *Guatte'ria*.

LAND-DITCHING. See DRAINING.

LANDRA. *Rapha'na landra*.

LANDSCAPE GARDENING, as its name intimates, is the composition of beautiful scenery, so that all artifice is concealed by the blending of trees, shrubs, ground, and water; thus forming vistas as gratifying as those which occur naturally. Admiration for such scenery is an innate

quality of the human mind; and successfully to imitate such scenery requires judgment as well as taste. It is not possible, without a heavy outlay, to introduce any desired species of landscape beauty upon a given plot of ground. There is the beauty of the level surface, quite unattainable without such outlay, upon a surface which is abrupt and broken. The beauty of the clay districts is not otherwise to be secured upon those of the chalk; neither on light uplands can be arranged the dense beauties of well-watered, alluvial vales. "Consult the genius of the place" is an axiom which has been derided, but which is dictated by the soundest sense.

Under this general head we have not space to enter fully into details; but some of these will be found, under their appropriate titles, in other pages, and chiefly borrowed from Mr. Whately, who has published more correct views upon the art of tastefully arranging grounds than most men who have written upon the subject.

LANKESTERIA. (Named after Dr. E. Lankester, a distinguished botanist. Nat. ord., *Acanthads* [Acanthaceæ]. Linn., 14-*Didynamia* 2-*Angiospermia*. Allied to *Eranthemum*.)

Stove evergreen shrubs, from Sierra Leone. Cuttings of young shoots in sandy soil, in heat, in spring; peat and loam, well drained. Summer temp., 60° to 85°; winter, 48° to 58°.

L. longiflora (long-flowered). Yellow. April.

— *parviflora* (small-flowered). Yellow. April. 1844.

LANTA'NA. (An ancient name for *Viburnum*. Nat. ord., *Verbenas* [Verbenaceæ]. Linn., 14-*Didynamia* 2-*Angiospermia*.)

Stove evergreen shrubs. Cuttings of the short side-shoots, two inches in length, taken off close to the old wood, when fresh growth commences, in spring; fibry loam and a little peat; *Sellovia'na* requires sandy peat. Summer temp., 60° to 85°; winter, 45° to 55°.

L. aculeata (prickly). 10. Red. June. W. Ind. 1692.

— *Brasiliensis* (Brazilian). 3. White. June. Brazil. 1823.

— *coccinea* (scarlet). 3. Scarlet. June. S. Amer. 1824.

— *crocea* (copper-coloured). 4. Copper. June. Jamaica. 1818.

— *hispida* (bristly). 3. Purple. July. Mexico. 1824.

— *horrida* (horrid). 3. Red. June. Mexico. 1824.

— *involucrata* (involucrated). 3. Pink. July. W. Ind. 1690.

— *lavandula'cea* (lavender-like). 3. Red. July. S. Amer. 1820.

— *melissifolia* (balm-leaved). 2. Yellow. August. W. Ind. 1732.

— *molle* (soft). 4. Red, white. July. Mexico. 1828.

— *multiflora* (many-flowered). 1834.

L. nivea mutabilis (snowy-changeable-coloured).

5. Yellow, rose. May.

— *odora'ta* (scented). 2. White. May. W. Ind. 1758.

— *pilo'sa* (downy). 3. Purple. July. Cuba. 1823.

— *purpurea* (purple). 2. Purple. July. S. Amer. 1820.

— *ra'dula* (rough-leaved). 3. Purple. W. Ind. 1803.

— *salsia'fo'lia* (sage-leaved). 3. Red. June. Cape of Good Hope. 1823.

— *Sello'sia* (Sellow's). 1. Rose. April. Monte Video. 1828.

— — *lanceola'ta* (spear-head-leaved). Deep rose. July. Monte Video. 1838.

— *stri'cta* (erect). 3. Pale purple. Jamaica. 1733.

— *trifo'lia* (three-leaved). 3. Purple. July. W. Ind. 1733.

— *viola'cea* (violet). 3. Violet. July. S. Amer. 1818.

LAPAGE'RIA. (Probably a commemorative name. Nat. ord., *Philesiads* [*Philesiaceæ*]. Linn., 6-*Hexandria* 1-*Monogynia*.)

A fine hardy herbaceous twiner, like a *Smilax*, with large, rosy flowers, like *Bomarea*.

L. rosea (rose-flowered). Patagonia. 1847 or 1848.

LAPLA'CEA. (Named after *Laplace*, the distinguished philosopher. Nat. ord., *Theads* [*Ternströmiaceæ*]. Linn., 13-*Polyandria* 1-*Monogynia*. Allied to *Bonnetia*.)

Stove evergreen twiner. Cuttings of half-ripened shoots in sand, in heat, under a bell-glass; sandy peat and fibry loam, well drained. Summer temp., 60° to 85°; winter, 50° to 60°.

L. semiserra'ta (half-saw-edged-leaved). 2. White. September. Brazil. 1842.

LA'RIX. The Larch. See PR'NUS.

LARKSPUR. *Delphi'nium*.

LA'RREA. (Named after a Spaniard of that name. Nat. ord., *Bean-capers* [*Zygophyllaceæ*]. Linn., 10-*Decandria* 1-*Monogynia*. Allied to *Zygophyllum*.)

Greenhouse evergreens, from South America, with yellow flowers. Cuttings of young half-ripened shoots in sand, under a bell-glass, in summer; peat and fibry loam, with silver sand, and pieces of broken pot, and charcoal, to keep the soil open. Winter temp., 40° to 48°; summer, in a shaded position.

L. divarica'ta (straggling). 2. July. 1829.

— *ni'tida* (shining-leaved). 2. June. 1829.

LARVA. The name by which an insect is described when in the state between the egg and the chrysalis form. The larva of a butterfly or moth is commonly known as a *caterpillar*; of a fly or beetle, as a *maggot* or *grub*.

LASERWORT. *Tha'psia laserpe'tii*.

LASIA'NDRA. (From *lasios*, woolly, and *aner*, an anther; woolly stamened. Nat. ord., *Melastomads* [*Melastomaceæ*]. Linn., 10-*Decandria* 1-*Monogynia*. Allied to *Oseebeckia*.)

Stove evergreen shrubs, with purple flowers. Cuttings of young half-ripened shoots in summer, in sand, in heat, under a bell-glass; lumpy, rough

compost, consisting of sandy peat, fibry loam, silver sand, broken pots, and charcoal. Summer temp., 60° to 80°; winter, 50° to 60°.

L. argentea (silvery-leaved). 5. July. Rio Janeiro. 1816.

— *Fontaine'sia* (Des Fontaines'). 6. Rio Janeiro.

— *petiola'ta* (long-leaf-stalked). 5. June. Brazil. 1836.

LASIOPE'TALUM. (From *lasios*, woolly, and *petalon*, a petal, or flower-leaf. Nat. ord., *Byttneriads* [*Byttneriaceæ*]. Linn., 5-*Pentandria* 1-*Monogynia*.)

Greenhouse evergreen shrubs, from New Holland. Cuttings of half-ripened shoots in sand, under a glass, in April or May; sandy peat and fibry loam, well drained, and carefully watered; either stagnant moisture or a sour soil destroys them. Winter temp., 40° to 45°.

L. ferrugi'neum (rusty). 4. White. June. 1791.

— *macrophy'llum* (large-leaved). 5. Pale green. May. 1825.

LASIOSPE'RMUM. (From *lasios*, woolly, and *sperma*, a seed. Nat. ord., *Composites* [*Asteraceæ*]. Linn., 19-*Syngenesia* 1-*Æqualis*. Allied to *Santolina*.)

Half-hardy evergreen trailing plants, with yellow flowers. Division in spring, and cuttings under a hand-light, in a shady place, in summer; common garden-soil. Most of them require the protection of a cold pit in winter. The Italian species are most hardy.

L. anthemoi'des (anthemis-like). ½. August. Italy. 1729.

— *crithmifo'lium* (samphire-leaved). ½. August. Macedonia. 1817.

— *eriospe'rmum* (woolly-seeded). 1. August. Italy. 1816.

— *peduncula're* (long-flower-stalked). ¾. July. Italy. 1798.

— *rigidum* (stiff). ¾. August. Greece. 1816.

LASTHE'NIA. (Derivation not explained. Nat. ord., *Composites* [*Asteraceæ*]. Linn., 19-*Syngenesia* 2-*Superflua*.)

Hardy annuals, with yellow flowers. Seeds in October, and plants protected by boughs of evergreens during the winter; or sow in March and April in the open border.

L. Califo'rnica (Californian). 1. May. California. 1834.

— *glabra'ta* (smooth). 1½. May. California. 1834.

— *obtusifo'lia* (blunt-leaved). 1. May. Chili. 1833.

LASTRE'A. (Derivation unexplained. Nat. ord., *Ferns* [*Polypodiaceæ*]. Linn., 24-*Cryptogamia* 1-*Filices*.)

For culture, see FERNS. They have all yellowish spores.

HARDY.

L. aculea'ta (common-prickly). 2. June. Britain.

— *crista'ta* (lesser-crested). ½. July. Britain.

— *dilat'a'ta* (enlarged-crested). 2. June. Britain.

— *filix-mas* (male-fern). 3. Britain.

— *Goldi'na* (Goldin's). July. N. Amer. 1822.

— *interme'dia* (intermediate). June. N. Amer. 1837.

— *margina'tis* (border-spored). 2. June. N. Amer. 1772.

— *Novaboracensis* (New York). 1½. July. N. Amer. 1822.

- L. oreopteris* (mountain-fern). 3. July. Britain.
— recurva (bent-back). July. Britain.
— spinulosa (crested-prickly). 1. June. Britain.
— thelypteris (lady-fern). 1. July. Britain.

GREENHOUSE.

- L. decomposita* (decomposed). 4. July. N. Holland. 1825.
— decurrens (running-down). June. China. 1840.

STOVE.

- L. appendiculata* (appendaged). July. E. Ind.
— ascendens (rising). August.
— atra (blackish). June. E. Ind.
— attenuata (thin). June. Isle of Samaria. 1839.
— chrysoloba (golden-lobed). July. Brazil. 1840.
— confertissima (bordering). W. Ind. 1835.
— eburnea (ivory). July. Nepal. 1841.
— elongata (lengthened). 2. July. Madeira. 1799.
— eriocarpha (woolly-spored). June. E. Ind.
— exigua (little). July. Isle of Luzon.
— falciculata (sickle-like). July. S. Amer.
— indivisa (undivided). July. W. Ind. 1840.
— invisibilis (unseen). 2. July. Jamaica. 1830.
— laeta (broad). June. Isle of Luzon. 1834.
— ligulata (strap-leaved). June. Isle of Luzon. 1839.
— macrocarpha (large-spored). August. E. Ind. 1827.
— membranifolia (membrane-fronded). June. Isle of Luzon. 1844.
— multifida (many-paired). July. E. Ind. 1839.
— patens (spreading). 2. July. W. Ind. 1784.
— patentissima (very-spreading). August. E. Ind. 1825.
— polyphylla (many-fronded). August. India.
— Presliana (Presl's). June. India.
— propinqua (allied). July. Isle of Luzon.
— pubescens (downy). July. Jamaica.
— semicordata (half-heart-shape). June. W. Ind. 1822.
— serrata (saw-like). 2. July. W. Ind. 1819.
— similis (like). July. Malacca.
— spectabilis (showy). June. Isle of Luzon.
— Sprengelii (Sprengel's). August. India.
— venusta (handsome). August. India. 1825.
— verrucosa (warty). June. E. Ind. 1840.
— vestita (clothed). July. Brazil. 1844.
— villosa (shaggy). 3. July. Jamaica. 1844.
— viscosa (clammy). July. Malacca. 1839.

LATA'NIA. Bourbon Palm. (The Bourbon name is *Latanier*. Nat. ord., *Palms* [*Palmaeae*]. Linn., 22-*Diaceae* 13-*Mnadelphica*.)

Stove palms, with greenish-white flowers. Seeds in a hotbed; rich, loamy soil. Summer temp., 60° to 90°; winter, 55° to 60°.

- L. Borbonica* (common-Bourbon). 20. Bourbon. 1816.
— glaucophylla (milky-green-leaved). 15. E. Ind. 1823.
— rubra (red). 15. Mauritius. 1788.

LATERALS, or Side-Shoots, are those which spring from the sides of the main branches, and are thus described in contradistinction to the terminal or leading shoots of the branches:—The laterals on the lower branches, like those branches themselves, are usually longer as they approach the base of the tree, because they extend to obtain the benefit of the light kept from them by the branches

above. If unable thus to extend, as in the case of inner trees of those planted in clumps, the laterals die, and occasion the nakedness of their trunks. If the terminal shoot of a branch be cut away, the laterals increase more in length, not only because more sap is thus afforded them, but because an extra effort is made to advance into the desired degree of light.

LA'THYRUS. (From *la*, to add to, and *thouros*, an irritant; to increase excitement, the supposed qualities of the seeds. Nat. ord., *Leguminous Plants* [*Fabaceae*]. Linn., 17-*Diadelphia* 4-*Decandria*.)

Seeds of annuals, in common soil, in spring; perennials, by division at the same time, or cuttings of the young shoots under a bell-glass: common garden-soil.

HARDY ANNUALS.

- L. amplexicaulis* (double-fruited). 1½. Pink. June. Levant. 1680.
— angulatus (angular-seeded). 1. Red. June. South Europe. 1683.
— leptophyllus (fine-leaved). 1. Purple. June. Caucasus. 1818.
— setifolius (bristle-leaved). 1. Red. June. South Europe. 1739.
— sphaericus (round-seeded). 1. Crimson. June. South Europe. 1801.

HARDY CLIMBING ANNUALS.

- L. alatus* (winged). 3. Purple. July. Italy. 1823.
— annuus (annual). 4. Yellow. July. South Europe. 1621.
— auriculatus (eared). 4. Purple. July. South Europe. 1800.
— ciceraria (flat-podded). 2. Red. South Europe. 1633.
— cornutus (horned). 3. Purple. July. 1818.
— hirsutus (hairy-podded). 4. Purple. July. England.
— italicus (Italian). 3. Pink. August. Italy.
— lusitanicus (Portuguese). 3. July. Spain. 1827.
— odoratus (fragrant. *Sweet Pea*). 4. Variegated. July. Sicily. 1700.
— purpureus (purple). 3. Purple. July. Crete.
— sativus (cultivated. *Chickling Vetch*). 3. White. South Europe. 1640.
— tenuifolius (fine-leaved). 3. Blue. July. N. Africa. 1820.
— tingitana (Tangier). 4. Dark purple. July. Barbary. 1680.
— tumidus (swollen). 1. Red. July. Piedmont. 1817.

HARDY DECIDUOUS CLIMBERS, &c.

- L. Altaicus* (Altai). Altai. 1832. Herbaceous perennial.
— Armitageanus (Armitage's). 10. Purple, blue. May. Brazil. 1824. Shrub.
— Californicus (Californian). 4. Purple. June. California. 1826.
— decaphyllus (ten-leaved). 4. Red, lilac. June. N. Amer. 1827.
— grandiflorus (large-flowered). 4. Rose. July. South Europe. 1814.
— heterophyllus (various-leaved). 4. Flesh. August. Europe. 1791.
— incurvus (curved-podded). 2. Blue. July. Russia. 1808.

- L. intermedium* (intermediate). 4. Red. August. North Europe. 1820.
 — *latifolius* (broad-leaved). *Everlasting Sweet-Pea*. Pink. August. England.
 — *Macraei* (MacRae's). 3. Purple, white. October. Chili. 1824.
 — *Magellanicus* (Magellan). 3. Purple, blue. May. Cape Horn. 1744.
 — *mutabilis* (changeable). 4. Purple, red. July. Siberia. 1825.
 — *myrtifolius* (myrtle-leaved). 3. Red. May. Philadelphia. 1822.
 — *nervosus* (nerved). 3. Blue. June. Monte Video. 1843. Greenhouse evergreen shrub.
 — *palustris* (marsh). 4. Pale purple. June. Britain.
 — *pisiformis* (pea-formed). 3. Purple. July. Siberia. 1795.
 — *polymorphus* (multiform). 3. Pale purple. July. Missouri. 1824.
 — *pratensis* (meadow). 3. Yellow. Britain.
 — *pubescens* (downy). 3. Purple, blue. May. Buenos Ayres. 1843. Greenhouse evergreen shrub.
 — *purpureo cæruleus* (purplish-blue). 10. Purple, blue. August. Brazil. 1836. Twiner.
 — *roseus* (rosy). 2. Red. July. Iberia. 1822.
 — *rotundifolius* (round-leaved). 1½. Rose. July. Tauria. 1822.
 — *stipulaceus* (large-stipuled). 3. Purple. July. New York. 1816.
 — *sybostris* (wood). *Everlasting Pea*. 3. Purple. July. Britain.
 — *tomentosus* (woolly). 3. Lilac. June. Buenos Ayres. 1839.
 — *tuberosus* (tuberous). 2. Red. July. Holland. 1596.
 — *venosus* (veiny). 4. White, red. June. Pennsylvania.

LAUREL. *Laurus*.LAUREL CHERRY. *Cerasus lauro-cerasus*.LAURESTINUS. *Viburnum tinus*.LAURUS. Laurel. (From the Celtic *laur*, or *laur*, green. Nat. ord., *Laurels* [Lauraceæ]. Linn., 9-*Enneandria* 1-*Monogynia*.)

The Bay (*Laurus nobilis*) represents this large order. They are all more or less aromatic, and produce camphor, cinnamon, nutmegs, cassia, and other fruits and products in commerce. Few of the best of these, even *nobilis*, the Sweet Bay, will flourish in the north of the Island without protection. It and its allies, the *Sassafras*, *Benzoin*, &c., are propagated by cuttings under hand-lights, in the end of summer; by layers, by pieces of the roots, and by seeds, which generally require to be in the rot-heap a season before vegetating; common soil, if good and dry, suits them. The stove and greenhouse species by cuttings in sand, under a bell-glass, and potted off in sandy peat and fibry loam, and the usual temperature of these compartments. Many, however, would do better planted against a conservative wall, heated and protected in winter.

HARDY DECIDUOUS.

- L. æstivalis* (summer). 6. Yellow. April. N. Amer. 1775.
 — *albida* (whitish-leaved). 10. Yellow. Carolina. 1824.

- L. Benzoin* (Benzoin). 8. Yellow, green. April. N. Amer. 1683.
 — *Carolinensis* (Carolina). 15. Yellow, green. May. N. Amer. 1806.
 — *glabra* (smooth). Yellow, green. May. N. Amer. 1806.
 — *obtus* (blunt-leaved). 15. Yellow, green. April. Carolina. 1806.
 — *pubescens* (downy). 15. Yellow, green. April. N. Amer. 1806.
 — *Catesbyana* (Catesby's). 10. White. Carolina. 1820.
 — *diospyrus* (Jove's-fruit). 6. Green, yellow. April. N. Amer. 1810.
 — *geniculata* (jointed). 6. Yellow. April. N. Amer. 1759.

GREENHOUSE EVERGREENS.

- L. aggregata* (crowded-flowered). 3. Green, yellow. China. 1821.
 — *bullata* (blistered). *African Oak*. Green. June. Cape of Good Hope. 1823.
 — *Canariensis* (Canary). 10. Yellow, green. Canaries. 1815.
 — *faetens* (strong-smelling). 20. Green, yellow. Madeira. 1760.
 — *Indica* (Indian-Bay). 20. Green, yellow. July. Madeira. 1765.

STOVE EVERGREENS.

- L. chloroxylon* (green-wood. *Cogwood-tree*) 60. Green, white. W. Ind. 1778.
 — *coriacea* (leather-leaved). 50. White. W. Ind. 1810.
 — *crassifolia* (thick-leaved). 40. White. Cayenne. 1800.
 — *exaltata* (lofty). 60. White, yellow. Jamaica. 1800.
 — *floribunda* (bundle-flowered). 40. Yellow, green. W. Ind. 1800.
 — *nivea* (snow-white). 1820.
 — *patens* (spreading). 15. White, yellow. W. Ind. 1824.
 — *pendula* (weeping). 40. Jamaica. 1800.
 — *salicifolia* (willow-leaved). 20. Yellow, green. April. W. Ind. 1826.
 — *splendens* (shining). 40. Yellow, green. E. Ind. 1800.
 — *thyrsiflora* (thyrses-flowered). 30. Yellow, green. Madagascar. 1810.

HARDY EVERGREENS.

- L. nobilis* (noble. Bay). 15. Yellow, white. April. South Europe. 1561.
 — *crispa* (curled-leaved). 20. Yellow, white. May.
 — *foe-re-pleno* (double-flowered). 20. Yellow, white. May.
 — *latifolia* (broad-leaved). Yellow, white. May. Asia. Half-hardy.
 — *salicifolia* (willow-leaved). 6. Yellow, white. April.
 — *undulata* (wavy-leaved). 4. Yellow, white. April.
 — *variegata* (variegated-leaved). 20. Yellow, white. May.
 — *regalis* (royal). California. 1847.

LAVANDULA. Lavender. (From *lavo*, to wash; referring to lavender-water. Nat. ord., *Lipnorts* or *Labiates* [Lamiaceæ]. Linn., 14-*Didynamia* 1-*Gymnospermia*.)

Cuttings of large pieces, in spring and autumn, firmly inserted in the ground; but small, young shoots in spring, under a hand-light, make the

nearest plants; sandy loam suits them best. Those that require the protection of a pit or cool greenhouse are propagated in a similar manner, and require the same soil. The flowers of the common lavender (*L. spica*) are ready for drying or distilling at the end of June.

HARDY EVERGREENS.

- L. latifolia* (broad-leaved). 2. Lilac. August. South Europe. 1568.
— *spica* (common-lavender-spike). 2. Lilac. August. South Europe. 1568.
— *stachas* (stachas). 1½. Lilac. June. South Europe. 1568.
— *vera* (true). Blue. July. South Europe. 1568.

GREENHOUSE EVERGREENS.

- L. abrotanoides* (southernwood-like). 1½. Lilac. July. Canaries. 1699.
— *dentalta* (toothed-leaved). 1½. Lilac. August. South Europe. 1597.
— *multifida* (many-cleft). 1½. Lilac. August. South Europe. 1597. Biennial.
— *pinnata* (leafleted). 1½. Lilac. June. Madeira. 1777.
— — *pubescens* (downy). Lilac. June. 1816.
— *viridis* (green). 1½. Purple. June. Madeira. 1777.

LAVA'TERA. (Named after the two *Lavaters*, Swiss naturalists. Nat. ord., *Mallowworts* [Malvaceæ]. Linn., 16-Monadelphica 8-Polyandria.)

Annuals and biennials, in common garden-soil, by seed in spring; herbaceous, by division, and cuttings at the same time; shrubby, by cuttings under a hand-light, in sandy soil; light, sandy loam suits them all. The frame and cool greenhouse species merely require the protection of these departments in winter.

HALF-HARDY EVERGREENS.

- L. acerifolia* (maple-leaved). 3. Pink. July. Teneriffe. 1820.
— *africana* (African). 3. Pink. June. Spain. 1820.
— *hispida* (bristly). 5. Pink. June. Algiers. 1804.
— *lusitana* (Portuguese). 3. Purple. August. Portugal. 1748.
— *maritima* (sea-side). 2. White. May. South Europe. 1597.
— *micans* (glittering). 3. Purple. June. Spain. 1796.
— *olbia* (Olbia). 3. Red, purple. August. Provence. 1570.
— *phænicea* (fine-red). 5. Pink. June. Canaries. 1816.
— *pseudo-olbia* (bastard-olbia). 5. Red. June. 1817.
— *triloba* (three-lobed). 3. Light purple. June. Spain. 1759.
— *unguiculata* (clawed). 6. Lilac. August. Samos. 1807.

HERBACEOUS PERENNIALS.

- L. Neapolitana* (Neapolitan). 6. Purple. June. Naples. 1818. Hardy.
— *plebeia* (vulgar). 2. Pale. September. N. Holland. 1820. Greenhouse.
— *Thuringiaca* (Thuringian). 4. Light blue. August. Germany. 1731. Hardy.

HARDY ANNUALS AND BIENNIALS.

- L. ambigua* (doubtful). 2. Purple. August. Naples. 1824.
— *arbores* (tree-mallow). 6. Purple. August. Britain. Biennial.

- L. australis* (southern). 2. Purple. August. South Europe. 1820.
— *biennis* (biennial). 4. Red. August. Caucasus. 1819. Biennial.
— *cretica* (Cretan). 4. Light blue. July. Candia. 1723.
— *flava* (yellow). 4. Yellow. July. Sicily. 1818.
— *lanceolata* (spear-head-leaved). 2. Purple. August. Europe. 1817.
— *punctata* (dotted-stalked). 2. Pale. August. Italy. 1800.
— *salvitellensis* (Salvitella). 6. Pink. July. 1831. Biennial.
— *sylvestris* (wood). 2. Purple. August. Portugal. 1817.
— *trimestris* (three-monthly). 2. Flesh. June. Spain. 1638.

LAVENDER. *Lava'ndula*.LAVENDER COTTON. *Santol'ina*.

LAVRA'DIA. (Named after the *Marquis of Lavradio*. Nat. ord., *Sauvageads* [Sauvagesiaceæ]. Linn., 5-Pentandria 1-Monogynia.)

Sauvagesia, *Lavra'dia*, and *Luxemburgia*, compose this small order, which is intermediate between Violetworts and Frankeniads. Stove evergreen. Cuttings of ripened shoots in sand, under a bell-glass, and in heat; sandy peat and fibry loam, well drained. Summer temp., 60° to 80°; winter, 48° to 55°.

- L. montana* (mountain). 1. Purple. Brazil. 1826.

LAWN is a surface of turf in the vicinity of the house, requiring to be kept smooth by the regular application of the roller and scythe. When first constructed, after the ground has been dug over as level as may be, it must be rolled, the hollows filled up, and this repeated until a level surface of earth is obtained. It must then be slightly pointed over with a fork, and the turf laid, or the grass-seed sown. For directions to lay the turf, see *TURFING*; and for the proper grasses, if seed is employed, see *GRASSES*.

In very dry weather all lawns should be watered, and, if a little guano and muriate of lime be dissolved in the water, it will keep the surface gently moist, and the turf green, even in dry weather.

LAWSONIA. (Named after *Isaac Lawson, M.D.*, author of "A Voyage to Carolina." Nat. ord., *Loosestrifes* [Lythraceæ]. Linn., 8-Octandria 1-Monogynia. Allied to *Grislea*.)

Stove trees, from the East Indies. Cuttings of ripe shoots in sand, under a bell-glass, and in strong heat; sandy peat and turfy loam. Summer temp., 60° to 85°; winter, 50° to 55°.

- L. alba* (white). White. 1752.
— *purpurea* (purple). 12. Purple. 1820.

LAXMA'NNIA. (Named after *E. Laxmann*, a Siberian traveller. Nat. ord., *Lilyworts* [Liliaceæ]. Linn., 6-Hexandria 1-Monogynia. Allied to *Aphyllanthes*.)

Greenhouse herbaceous perennials, from New Holland. Divisions; loam and peat; require a cold pit or cool greenhouse during winter.

L. gracilis (slender). $\frac{1}{2}$. Purple, white. June. 1824.

— *grandiflora* (large-flowered). White, brown.

LAYER. The following excellent combination of practice and science is from Dr. Lindley's "Theory of Horticulture:"—A layer is a branch bent into the earth, and half cut through at the bend, the free portion of the wound being called "a tongue." It is, in fact, a cutting only partially separated from its parent. The object of the gardener is to induce the layer to emit roots into the earth at the tongue. With this view he twists the shoot half round, so as to injure the wood-vessels; he heads it back, so that only a bud or two appears above ground, and when much nicety is requisite, he places a handful of silver-sand round the tongued part; then, pressing the earth down with his foot, so as to secure the layer, he leaves it without farther care. The intention of both tonguing and twisting is to prevent the return of sap from the layer into the main stem, while a small quantity is allowed to rise out of the latter into the former; the effect of this being to compel the returning sap to organize itself externally as roots, instead of passing downwards below the bark as wood. The bending back is to assist in this object by preventing the expenditure of sap in the formation, or rather, completion of leaves, and the silver-sand is to secure the drainage so necessary to cuttings.

In most cases this is sufficient; but it must be obvious, that the exact manner in which the layering is effected is unimportant, and that it may be varied according to circumstances. Thus, Mr. James Munro describes a successful method of layering brittle-branched plants by simply slitting the shoot at the bend, and inserting a stone at that place; (*Gardener's Magazine*, ix. 302;) and Mr. Knight found that, in cases of difficult rooting, the process is facilitated by ringing the shoot just below the tongue about Midsummer, when the leaves upon the layers had acquired their full growth; (*Hort. Trans.* i. 256;) by which means he prevented the passage of the returning sap further downwards than the point intended for the emission of roots. It will sometimes happen that a branch of a plant cannot be conveniently bent

downwards into the earth; in such cases, the earth may be elevated to the branch by various contrivances, as is commonly done by the Chinese. When this is done, no other care is necessary than that required for layers, except to keep the earth surrounding the branch steadily moist. See figure.



LAYING-IN is a gardener's term for training the branches of espaliers and wall-trees. *Laying-in-by-the-heels* is his mode of describing a plant's having its roots roughly buried in the soil for some temporary purpose.

LAZY-BEDS are beds dug for the growth of potatoes, the sets being then placed in rows on the surface, and covered by the soil dug out of narrow, deep alleys between the beds.

LEADWORT. *Plumbago*.

LEAF-MOULD. This is formed of leaves kept moist and in a heap, frequently turned over, until completely decayed, and reduced to a dark brown, moist powder. It usually takes two years to complete this process. An excess of water delays the decaying, and either lime or gas ammoniacal liquor promotes it; but then few potted plants are benefited by any such excess of either of these additions.

LEATHERWOOD. *Dicra*.

LEAVES are highly vascular organs, in which are performed some of the most important functions of a plant. They are very general, but not absolutely necessary organs, since the branches sometimes perform their offices. Such plants, however, as naturally possess them, are destroyed, or greatly injured, by being deprived of them.

The duration of a leaf is, in general, for a year only, though in some plants they survive for twice or thrice that period. These organs are generally of a green colour. Light seems to have a powerful influence in causing this, since, if kept in the dark, they become of a pale yellow, or even white hue, unless uncombined hydrogen is present, in which case they retain their verdure though light be absent. Hence their blanching would seem to arise from their being unable to obtain this gas under ordinary

circumstances, except when light is present. Now, the only source from which they can obtain hydrogen is by decomposing water; and how light assists in the decomposition, may, perhaps, be explained by the dis-oxygenizing power with which it is gifted. The violet rays of the spectrum, and those just beyond them, have this power in the greatest degree; and Sennebier has ascertained by experiment, that those rays have the greatest influence in producing the green colour of plants.

When leaves are of any other hue than green they are said to be *coloured*. This variegation is often considered to be a symptom either of tenderness or debility; and it is certain, when the leaves of a plant become generally white, that that individual is seldom long-lived. Mr. Knight, however, has demonstrated that variegation is not a certain indication of a deficiency of hardihood.

The functions of the leaves appear to be a combination of those of the lungs and stomach of animals; they not only modify the food brought to them from the roots, so as to fit it for increasing the size of the parent plant, but they also absorb nourishment from the atmosphere. The sap, after elaboration in these organs, differs in every plant, though, as far as experiments have been tried, it appears to be nearly the same in all vegetables when it first reaches them. The power of a leaf to generate sap is in proportion to its area of surface, exposure to the light, and congenial situation.

The transpiration of plants decreases with that of the temperature to which they are exposed, as well as with the period of their growth. This explains why the gardener finds that his plants do not require so much water in cold weather, nor during the time that elapses between the fall of their blossoms and the ripening of their seed. During this period they do not transpire more than one-half so much as during the period preceding and attending upon their blooming.

The transpiration takes place from the upper surface of the leaves. Hence arises the benefit which plants derive in rooms, greenhouses, and other confined inclosures, by keeping these surfaces cleansed with the sponge and syringe. Some plants are particularly sensitive to injury from any check to their transpiration, among which are the tea-scented roses;

and it thence arises that they cannot now be cultivated in nursery gardens near London, where they once flourished when that metropolis was less extensive. It must be remembered, however, in using the sponge and syringe, that the under side of leaves is also an absorbing surface, benefited by being kept clean, and by the application of moisture.

During the day leaves absorb carbonic acid gas, which they decompose, retaining its carbon, and emitting the greater part of the oxygen that enters into its composition. In the night this operation is, in a certain measure, reversed, a small quantity of oxygen being absorbed from the atmosphere, and a yet smaller proportion of carbonic acid emitted.

Carbonic acid gas in small proportions is essential to the existence of leaves; yet it only benefits them when present in quantities not exceeding one-twelfth of the bulk of the atmosphere in which they are vegetating, though one-twenty-fifth is a still more favourable proportion; and as hotbeds, heated by fermenting matters, have the air within their frames rapidly contaminated to a much greater extent than the proportions above named, thence arises the injury to the plants they contain from a too long neglected ventilation. The leaves turn yellow from the excess of acid, which they are unable to digest, and which consequently effects that change of colour which also occurs in autumn.

LECANOPTERIS. (From *lekane*, a basin, and *pterus*, a fern. Nat. ord., *Ferns* [Polypodiaceæ]. Linn., 24-*Cryptogamia* 1-*Filices*.)

A fine stove Fern. See **FERNS**.

L. carno'sa (fleshy-leaved). Yellow. May. Java.

LECHENAU'LTIA. See **LESCHENAU'LTIA**.

LEDEBOU'RIA. (Named after *M. Ledebour*, a botanical writer. Nat. ord., *Lily-worts* [Liliaceæ]. Linn., 6-*Hexandria* 1-*Monogynia*. Allied to *Bessera*.)

Greenhouse bulb, not to be confounded with *Ledebouria*, a name given to an umbel-bearing genus. Offsets; sandy loam, with a little peat; bulbs protected from cold and wet in winter.

L. hyacinthina (hyacinth-like). †. Greenish-white. E. Ind. 1832.

LEDON GUM. *Cistus le'don*.

LEDOCA'RPUM. (From *ledon*, the *Cistus*, and *karpós*, a fruit; fruit like that of the *Cistus*. Nat. ord., *Oxalids* [Oxalidaceæ]. Linn., 10-*Decandria* 5-*Pentagynia*.)

Greenhouse evergreen. Cuttings in sandy loam, under a bell-glass; sandy loam. Winter temp., 40° to 48°.

L. peduncularis (long-flower-stalked). 1. Yellow. August. Chili. 1825.

LE'DUM. Labrador Tea. (From *ledon*, the Greek name of *Cistus*. Nat. ord., *Heathworts* [Ericaceæ]. Linn., 10-*Decandria* 1-*Monogynia*. Allied to the *Rhododendron*.)

Hardy, evergreen, white-flowered shrubs. Layers; peat, with a little sand. Very pretty for bordering *Rhododendrons*.

L. Canadense (Canadian). 1½. April. Canada. — *latifolium* (broad-leaved). 3. April. N. Amer. 1763.

— *palmstre* (marsh). 2. April. Europe. 1762. — *decumbens* (lying-down). ½. April. Hudson's Bay. 1762.

LEE-CHEE. *Nephe'lium Litchi*'.

LEEK. (*Allium porrum*.) The leek is a hardy biennial; for although it attains perfection in size and for culinary purposes the first year, it does not run to seed until the second, the perfecting of which it often survives. The whole plant is eaten, being employed in soups, &c., and boiled and eaten with meat.

Varieties.—The *Musselburgh* and the large *London Leek*, which are by far the best; the *Scotch*, or *Flag*, which is larger and hardier; and the *Flanders*.

Sowing.—Sow first in the end of February a small crop for transplanting in June and July, as well as in part to remain where sown; again, for the main crop, in the course of March or early in April; and lastly, towards the close of April or beginning of May, for late transplanting. Sow in drills, some to remain after thinning; the leek, however, is much benefited by transplanting.

Cultivation.—When the plants are three or four inches in height, hoe and thin to two or three inches apart; water, also, in dry weather, will strengthen and forward them for transplanting, when six or eight inches high. They must be taken away regularly from the seed-bed, the ground being well watered previously, if not soft and easily yielding. When thinned out they may be left to remain in the seed-bed six inches asunder, as they do not grow so large as the transplanted ones, which must be set by the dibble in rows ten inches apart each way, nearly down to the leaves, that the neck, by being covered with the earth, may be blanched; water in abundance at the time of planting, and shorten the long, weak leaves, but leave the roots as uninjured as possible. By this treatment, and by cutting off the tops of the leaves about once a

month, as new ones are produced, the neck swells to a much larger size. The several sowings above directed will yield a supply from August until the following May, when they advance to seed. A portion should be always taken up and laid in sand previous to the ground being locked up by continued frost; but they will not keep many days in this situation.

LEIA'NTHUS. (From *leios*, smooth, and *anthos*, a flower. Nat. ord., *Gentianworts* [Gentianaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Lisianthus*.)

Stove plants. Seeds, sown carefully in a pot, placed in a hotbed; cuttings of young shoots in sandy soil, under a glass, in heat; sandy peat and fibry loam; a good heat when growing, cool and airy when blooming. General temperature, from 55° to 80°.

L. longifolius (long-leaved). 2. Yellow. August. Jamaica. 1844. Evergreen shrub. — *nigræscens* (black-flowered). 1½. Blackish. August. Guatemala. 1842. Biennial. — *umbellatus* (umbel-flowered). 20. Green, yellow. May. Jamaica. 1843. Evergreen tree.

LEIOPHYLLUM. (From *leios*, smooth, and *phyllon*, a leaf. Nat. ord., *Heathworts* [Ericaceæ]. Linn., 10-*Decandria* 1-*Monogynia*. Allied to *Ledum*.)

Hardy evergreen shrub. Cuttings and layers; peaty soil. See AMMYRSINE.

L. Lyoni (Lyon's). White. April. Carolina. 1812.

LEMON. See CITRUS.

LEMO'NIA. (Named after *Sir C. Lemon*, M.P. Nat. ord., *Rueworts* [Rutaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Monnieria*.)

Stove evergreen shrub. Cuttings of half-ripe shoots in sand, under a bell-glass, in bottom-heat; sandy peat and fibry loam. Summer temp., 60° to 85°; winter, 50° to 60°.

L. spectabilis (beautiful). Deep rose. September. Cuba. 1839.

LENNE'A. (Named after *M. Lenné*, a foreign landscape-gardener. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 17-*Diadelphia* 4-*Decandria*. Allied to *Robinia*.)

Greenhouse deciduous shrub. Young shoots in spring, or ripened shoots towards autumn, under a hand-light. Must have similar protection and treatment to the *Genista Canariensis*.

L. Robinioides (Robinia-like). Crimson. April. Mexico. 1843.

LEOCH'ILUS. (From *leios*, smooth, and *cheilos*, a lip. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-*Gynandria* 1-*Monandria*. Allied to *Oneidium*.)

Stove orchids. Division in spring; fibry peat, sphagnum, and crocks, and cultivated in shallow baskets, suspended from the roof of a moist orchid-house. Winter temp., 55° to 60°; summer, 60° to 90°.

- L. carinata* (keeled). Orange. Xalapa. 1842.
 — *cochlearis* (spoon-tipped). Yellow. Dominica. 1842.
 — *sanguinolentus* (bloody). Crimson. La Guayra. 1842.

LEONO'TIS. Lion's Ear. (From *leon*, a lion, and *ous*, an ear; some resemblance in the flower. Nat. ord., *Labiates* [Lamiaceæ]. Linn., 14-*Didynamia* 1-*Gymnospermia*. Allied to *Phlomis*.)

Annuals, by seed in hotbed, and young plants then treated as tender annuals; shrubs, by cuttings in sand, under a bell-glass, in peat; sandy peat and fibry loam. Common greenhouse and plant-stove treatment. Herbaceous species, by seeds, and division of the plant.

- L. cordata* (cordial). 3. Red. June. Britain.
 — *crispus* (curled-leaved). 2. Red. July. Siberia. 1658.
 — *villosus* (shaggy). 3. Purple. July. Tauria. 1820.
 — *intermedia* (intermediate). 3. Orange. September. Cape of Good Hope. 1822.
 — *lacteus* (torn). 3. Pink. June. Nepaul. 1824.
 — *lanatus* (woolly). 2. Yellow. July. Siberia. 1752.
 — *leonurus* (lion's-tail). 3. Scarlet. November. Cape of Good Hope. 1812.
 — *neptefolia* (catmint-leaved). 3. Orange. September. E. Ind. 1778.
 — *ovata* (egg-leaved). 14. Orange. June. Cape of Good Hope. 1813.
 — *Sibiricus* (Siberian). 2. Red. July. Siberia. 1759.

LEONTOPO'DIUM. Lion's Foot. (From *leon*, a lion, and *pous*, a foot; resemblance of the flower-heads. Nat. ord., *Composites* [Asteraceæ]. Linn., 14-*Syngenesia* 2-*Superflua*. Allied to *Antennaria*.)

Hardy herbaceous perennial. Seeds, and division of the roots in spring; common soil.

- L. Helveticum* (Swiss). 4. Yellow. June. Austria. 1776.

LEONU'RUS. See **LEONO'TIS.**

LEOPARD'S BANE. *Doro'nicum*.

LEOPOLDI'NIA. (Named after the late Empress of Brazil. Nat. ord., *Pulms* [Palmaeæ]. Linn., 21-*Monæcia* 6-*Hexandria*.)

Stove Palm. Seeds; rich, loamy soil. Summer temp., 60° to 90°; winter, 55° to 60°.

- L. pulchra* (beautiful). 60. Brazil. 1825.

LEPECHI'NIA. (Named after *Lepechin*, a Russian botanist. Nat. ord., *Labiates* or *Lipworts* [Lamiaceæ]. Linn., 14-*Didynamia* 1-*Gymnospermia*. Allied to *Sphaele*.)

Hardy herbaceous perennials. Division of the plant in spring, and cuttings of young shoots in sandy soil, under a hand-light, in spring and summer; loam and a little peat. *Spicata* requires a little protection in winter.

- L. chenopodiifolia* (chenopodium-leaved). 4. Red. July. Siberia. 1818.
 — *spicata* (spiked). 1. Pale yellow. July. Mexico. 1800.

LEPIDA'GATHIS. (From *lepis*, a scale, and *agathis*, a ball; referring to the bractes. Nat. ord., *Acanthads* [Acanthaceæ]. Linn., 14-*Didynamia* 2-*Angiospermia*. Allied to *Geissomeria*.)

Stove evergreen. Cuttings of young shoots, getting a little firm, in May, in sandy soil, in bottom-heat; fibry, sandy loam, and a little peat and leaf-mould. Summer temp., 60° to 80°; winter, 45° to 58°.

- L. cristata* (crested). 2. E. Ind. 1820.

LEP'DIUM. See **CRESS** and **MUSTARD**.

LEP'SMIUM. (From *lepis*, a scale; referring to the small scales at the crenatures. Nat. ord., *Indian Figs* [Cactaceæ]. Linn., 12-*Icosandria* 1-*Monogynia*. Allied to *Ripalis*.)

Greenhouse fleshy-leaved plants. For culture see **CÆRUS**.

- L. commune* (common). Rose, white. September. 1836.
 — *mysourus* (mouse-tail-like). 4. Yellow, white. July. 1837.
 — *paradoxum* (paradoxical). 3. 1846.

LEPTA'NDRA. See **VERO'NICA**.

LEPTA'NTHUS. (From *leptos*, slender, and *anthos*, a flower. Nat. ord., *Pontederads* [Pontederaceæ]. Linn., 3-*Triandria* 1-*Monogynia*.)

A hardy perennial marsh-plant. Offsets; properly an aquatic, but will flourish in a moist place and boggy soil.

- L. gramineus* (grassy). 1. Yellow. July. N. Amer. 1823.

LEPTOCA'LLIS. See **IPOME'A**.

LEPTO'CERAS. (From *leptos*, slender, and *keras*, a horn; referring to the form and substance of the column. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-*Gynandria* 1-*Monandria*. Allied to *Limodorum*.)

Greenhouse terrestrial orchids, from Swan River. Division in spring; fibry peat, well drained, with a little leaf-mould and sand. Winter temp., 45° to 50°.

- L. fimbriata* (fringed). Yellow. May.
 — *oblonga* (oblong). Yellow. May.
 — *pectinata* (comb-like). Yellow. May.

LEPTODE'RMIS. (From *leptos*, slender, and *derma*, the skin; referring to the thin bark. Nat. ord., *Cinchonads* [Cinchonaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Hamiltonia*.)

Greenhouse evergreen shrub. Cuttings of half-ripened young shoots in April, in sand, under a bell-glass, and in a mild bottom-heat; sandy peat and fibry loam. Winter temp., 45° to 48°.

- L. lanceolata* (spear-head-leaved). 3. Yellow. June. Nepaul. 1842.

LEPTOGRA'MMA. (From *leptos*, slender, and *gramma*, writing; referring to the form of the spore or seed-cases. Nat. ord., *Ferns* [Polypodiaceæ]. Linn., 24-*Cryptogamia* 1-*Filices*.)

Stove Ferns, with brownish-yellow spores.
See FERNS.

L. asplenioïdes (asplenium-like). June. Jamaica.

— *gracile* (slender). June. Brazil.

— *polypodioïdes* (polypodium-like). June. Brazil.

— *villosa* (shaggy). 2. July. Brazil. 1836.

LEPTOME'RIA. (From *leptos*, slender, and *meris*, a part; referring to the slender and almost leafless shoots. Nat. ord., *Sandworts* [Santalacæ]. Linn., 5-Pentandria 1-Monogynia.)

Greenhouse evergreens, with white blossoms, from New Holland. Cuttings of firm young shoots in sand, under a bell-glass; sandy peat and fibry loam, with pieces of charcoal. Winter temp., 40° to 48°.

L. acida (acid). 1. 1823.

— *Billardie'ri* (Labillardière's). 1. 1823.

LEPTO'SIPHON. (From *leptos*, slender, and *siphon*, a tube; alluding to the tube of the flower. Nat. ord., *Phloxworts* [Polemoniaceæ]. Linn., 5-Pentandria 1-Monogynia.)

Hardy annuals, from California. Sown in the borders at the end of March; sandy loam suits them; but they will do better still if assisted with leaf-mould or peat soil.

L. androsæus (androsace-like). 1. Blue, white. August. 1833.

— *densiflorus* (clustered-flowered). 2. Purple. June. 1833.

— *corollata* (white-corollaed). 2. White. June. 1833.

— *grandiflorus* (large-flowered). 1½. Blue, yellow. September. 1833.

— *luteus* (yellow). 1½. Deep yellow. September. 1833.

— *palidus* (pale). 1½. Pale yellow. September. 1833.

— *parviflorus* (small-flowered). 1½. Yellow. September. 1833.

LEPTOSPERMUM. (From *leptos*, slender, and *sperma*, a seed. Nat. ord., *Myrtleblooms* [Myrtacæ]. Linn., 12-Icosandria 1-Monogynia. Allied to *Metrosideros*.)

New Holland, greenhouse, evergreen plants, with white flowers. Seeds in a hotbed, in March; cuttings of young shoots, getting firm, in May, in well-drained pots, in sand, under a glass; loam two parts, peat one part, sand and charcoal half a part. Winter temp., 38° to 48°. Some, such as *lanigerum* and *grandiflorum*, would do well on conservative walls.

L. arachnoïdeum (cobwebbed). 3. June. 1795.

— *attenuatum* (thin). 5. June. 1795.

— *baccatum* (berry-fruited). 3. June. 1790.

— *emarginatum* (notch-leaved). 5. June. 1818.

— *flavescens* (yellowish). 5. June. 1787.

— *æroculsum* (zigzag). 10. June. 1823.

— *grandiflorum* (large-flowered). 5. June. 1810.

— *juniperinum* (juniper-leaved). 2. June. 1790.

— *lanigerum* (woolly). 5. June. 1774.

— *multicaule* (many-stemmed). 4. June. 1824.

— *obliquum* (twisted-leaved). June. 1800.

— *pedunculatum* (weeping). 4. July.

— *sericeum* (silky). 5. June. N. S. Wales. 1818.

— *squarrosum* (spreading). 4. July.

— *thymifolium* (thyme-leaved). 5. June. 1824.

— *triloculare* (three-celled). 2. June. 1800.

LEPTOSTE'LMA. See ERI'GERON MA'XIMUM.

LEPTO'TES. (From *leptos*, slender; referring to the leaves. Nat. ord., *Orchids* [Orchidacæ]. Linn., 20-Gynandria 1-Monandria. Allied to *Brassavola*.)

Stove orchids. Divisions in spring; fibry peat, potsherds, and old moss chopped, with the pot nearly filled with drainage. Summer temp., 60° to 85°; winter, 55° to 60°.

L. bicolor (two-coloured). 2. White, red. April. Brazil. 1831.

— *glaucophylla* (milky-green-leaved). White, purple. February. Organ Mountains. 1838.

— *coelestis* (one-coloured). White. February. Brazil. 1838.

LESCHENAU'LTIA. (Named after M. Leschenault, a French botanist. Nat. ord., *Goodeniads* [Goodeniaceæ]. Linn., 5-Pentandria 1-Monogynia.)

Greenhouse evergreens, from New Holland. Cuttings of the points of young shoots in sand, under a bell-glass, and as soon as struck, potted and grown in an open compost of turfy peat, fibry loam, silver sand, and pieces of broken pots and charcoal, the pots being well drained. Winter temp., 38° to 45°, with plenty of air when possible. A shady position in summer.

L. arcuata (bowed-branched). 1. Yellow. August. 1844.

— *biloba* (two-lobed). 1. Blue. June. 1840.

— *formosa* (handsome). 1. Scarlet. June. 1824.

— *oblonga* (flattened-round-lobed). 1. Orange. June. 1824.

— *splendens* (shining). 1½. Scarlet. June. 1844.

LESPEDE'ZA. (Named after *Lespedez*, once governor of Florida. Nat. ord., *Leguminous Plants* [Fabacæ]. Linn., 17-Diadelpchia 4-Decandria. Allied to *Desmodium*.)

North American plants, except where otherwise specified. Annuals, by seed, in a sandy, peaty border; perennials, by the same means in spring, and division of the roots; shrubs, cuttings either of young or ripened wood in sand, under a bell-glass; sandy, fibry peat. *Eriocarpa* requires the greenhouse, and *glomerata* must be used as a tender annual.

ANNUALS.

L. glomerata (crowded). 3. Purple. July. E. Ind. 1819. Stove.

— *Stuevei* (Stueve's). 1½. Purple. July. 1824. Hardy.

SHRUBS.

L. eriocarpa (woolly-fruited). 1. Violet. July. Nepal. 1819. Greenhouse evergreen.

— *frutescens* (shrubby). 4. Purple. July. 1739. Deciduous shrub.

HARDY HERBACEOUS PERENNIALS.

L. angustifolia (narrow-leaved). 2. Pale purple. June. 1800.

— *polystachya* (many-spiked). 2. White. July. 1789.

— *prostrata* (prostrate). 2. Purple. July. 1810. Trailer.

— *villosa* (shaggy). White. July. 1819.

— *violacea* (violet). 2. Violet. July. 1739.

— *divergens* (diverging). 2. Violet. July. 1800.

- L. viola'cea reticulata* (netted). 2. Purple. 1816.
 — *sessiliflora* (stalkless-flowered). 3. Purple. July. 1800.

LESSE'RTIA. (Named after the French botanist, *Baron Delessert*. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 17-*Diadelphia* 4-*Decandria*. Allied to *Swainsonia*.)

All natives of the Cape of Good Hope. Shrubby kinds, by seed in spring, and cuttings of young shoots in sand, under a glass; loam and peat; annuals, by seeds; and perennials, by seeds and division in spring; the seedlings should be potted off, when a few inches in height, into light, sandy loam. Winter temp., 40° to 48°.

GREENHOUSE ANNUALS.

- L. tomentosa* (downy). ½. Purple. June. 1822.
 — *vesicaria* (bladder-podded). Purple. June. 1825.
 — *virgata* (twiggy). Purple. June. 1828.

GREENHOUSE HERBACEOUS PERENNIALS.

- L. perennans* (lasting). 1. Red. August. 1776.
 — *procumbens* (lying-down). Purple. June. 1753.

GREENHOUSE EVERGREENS.

- L. brachystachya* (short-spiked). 1. Purple. July. 1826.
 — *falcifurmis* (sickle-formed). 1. Purple. July. 1826.
 — *fruticosa* (shrubby). 1. Purple. July. 1826.
 — *pulchra* (pretty). 1½. Red. May. 1817.

LETTSO'MIA. (Named after *J. C. Lettson*, a British physician and naturalist. Nat. ord., *Theads* [Ternströmiaceæ]. Linn., 13-*Polyandria* 1-*Monogynia*. Allied to *Freziera*.)

Stove evergreen shrub. Cuttings of young shoots, getting firm, in April or May, in sand, under a bell-glass, and a sweet bottom-heat; sandy, fibry loam, and sandy, turfy peat. Summer temp., 60° to 85°; winter, 55° to 60°.

- L. tomentosa* (woolly). 4. White. Peru. 1823.

LETTUCE. *Lactuca*.

LEUCADE'NDRON. (From *leukos*, white, and *dendron*, a tree; the white-leaved Silver-trees of the Cape colonists. Nat. ord., *Proteads* [Proteaceæ]. Linn., 22-*Diæcia* 4-*Tetrandria*.)

Greenhouse evergreen shrubs, with yellow flowers, from the Cape of Good Hope. Cuttings of the ripened shoots in summer, in sand, under a glass, and kept cool until the base of the cutting has callused, when extra heat may be applied; fibry loam and sandy peat, with a few rough pieces of charcoal, to keep the compost open. Winter temp, 38° to 45°.

- L. æmulum* (rival). 3. July. 1789.
 — *angustatum* (narrowed). 3. June. 1820.
 — *argenteum* (silver-tree). 15. August. 1693.
 — *caudatum* (tailed). 3. May. 1800.
 — *cine'reum* (grey). 3. July. 1774.
 — *comosum* (taufted). 3. May. 1818.
 — *concinnum* (neat). 3. 1800.
 — *co'ncolor* (one-coloured). 3. May. 1774.
 — *corymbosum* (corymbed). 3. April. 1790.
 — *decorum* (decorous). 3. 1790.
 — *floridum* (florid). 3. April. 1795.
 — *glabrum* (smooth). 3. May. 1870.

- L. grandiflorum* (large-flowered). 3. April. 1789.
 — *imbricatulum* (imbricated). 4. 1790.
 — *inflexum* (bent-in). 3. April. 1800.
 — *levisianus* (Lewis's). 4. April. 1774.
 — *linifolium* (flax-leaved). 4. May.
 — *marginatum* (bordered). 3. May. 1800.
 — *ovale* (oval-leaved). 3. May. 1818.
 — *plumosum* (feather-flowered). 4. July. 1774.
 — *retusum* (bent-back). 3. May. 1810.
 — *salignum* (willow-leaved). 3. May. 1774.
 — *sericeum* (silky). 3. May. 1817.
 — *spathulatum* (spatulate). 3. May. 1818.
 — *squarrosum* (spreading). 3. 1824.
 — *strictum* (upright). 3. June. 1795.
 — *venosum* (veiny). 3. May. 1816.

LEUCHTENBERGIA. (Named after *Prince Leuchtenburg*. Nat. ord., *Indian Figs* [Cactaceæ]. Linn., 12-*Icosandria* 1-*Monogynia*.)

Greenhouse evergreen. For culture, see *Cactus—Echinocactus*.

- L. principis* (noble). 1. Yellow. June. Mexico. 1847.

LEUCOCARPUS. (From *leukos*, white, and *carpos*, a fruit. Nat. ord., *Figworts* [Scrophulariaceæ]. Linn., 14-*Didynamia* 2-*Angiospermia*.)

Half-hardy annual. Seed in autumn; division and cuttings in spring; requires a little protection in winter; loam, leaf-mould, peat, and a little sand.

- L. alatus* (winged-stalked). 2. Yellow. Vera Cruz. 1830.

LEUCOCOR'RYNE. (From *leukos*, white, and *koryne*, a club; referring to the sterile anthers. Nat. ord., *Lilyworts* [Liliaceæ]. Linn., 3-*Triandria* 1-*Monogynia*. Allied to *Brodiaea*.)

Beautiful little half-hardy bulbs, from Chili, requiring the same treatment as *Ixia*s.

- L. alba'cea* (garlic-scented). 1. White. 1825.
 — *ixioides* (*ixia*-like). Lilac. October. 1821.
 — *odorata* (sweet-scented). 1. White. August. 1826.

LEUCOJUM. Snowflake. (From *leukos*, white, and *ion*, a violet; referring to the colour and fragrance of the flowers. Nat. ord., *Amaryllids* [Amaryllidaceæ]. Linn., 6-*Hexandria* 1-*Monogynia*. Allied to *Galanthus*.)

Hardy bulbs. Offsets in spring; sandy loam. See *ERINOSMA*.

- L. æstivum* (summer). 1½. White. May. England.
 — *pulchellum* (neat). 1½. White. April.

LEUCOPO'GON. (From *leukos*, white, and *pogon*, a beard; referring to the hairs on the flowers. Nat. ord., *Epacrids* [Epacridaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Lissanthe*.)

This is "the native currant" of settlers in New Holland. Greenhouse, New Holland, white-flowering, evergreen shrubs. Cuttings of the points of shoots, getting a little firm in May, in sand, under a bell-glass; peat and loam, both fibry, with silver sand, and nodules of charcoal to keep the compost open; drainage and watering must be carefully attended to. Winter temp., 38° to 45°.

- L. amplexicaulis* (stem-clasping). 3. 1815.
 — *collinus* (hill). 3. May. 1824.
 — *ericoïdes* (heath-like). 6. 1815.
 — *juniperoïdes* (juniper-like). 3. May. 1804.
 — *lanceolatus* (spear-head-leaved). 12. May. 1790.
 — *obovatus* (reverse-egg-leaved). 1. June. 1824.
 — *polystachys* (many-spiked). 2. June. 1826.
 — *Richei* (Riche's). 5. June. 1822.
 — *setigera* (bristly). 2. 1824.
 — *striatus* (channelled). 3. June. 1823.
 — *verticillatus* (whorled). 1837.
 — *virgatus* (twiggy). 2. June. 1824.

LEUCOSPÆRUM. (From *leukos*, white, and *sperma*, a seed. Nat. ord., *Proteads* [Proteaceæ]. Linn., 4-Tetrandria 1-Monogynia. Allied to *Protea*.)

Greenhouse evergreen shrubs, with yellow flowers, from the Cape of Good Hope. Cuttings of ripe young shoots, with the leaves left on, except those close to the base of the cutting, firmly in sand, and covered with a bell-glass, kept cool, and care taken to prevent damping; light, sandy, fibry loam, with a little peat, nodules of charcoal, freestone, and brick. Winter temp., 35° to 45°.

- L. attenuatum* (thin). 3. June. 1820.
 — *caudicans* (whitish). 2. August. 1790.
 — *formosum* (handsome). 4. July. 1784.
 — *grandiflorum* (large-flowered). 4. June. 1800.
 — *lineare* (narrow-leaved). 4. July. 1774.
 — *medium* (middle-sized). 3. July. 1794.
 — *perle* (matched). 2. August. 1789.
 — *patulum* (spreading). 2. August. 1823.
 — *spatulatum* (spatulate). 2. June. 1825.
 — *tomentosum* (cottony). 2. June. 1789.

LEUCOSTE'MMA. Synonyme of *Elichrysum*.

LEUCOTHOE. Synonyme of *Andromeda*.

LEU'ZEA. (Named after *De Leuze*. Nat. ord., *Compositæ* [Asteraceæ]. Linn., 19-Syngenesia 3-Frustranea. Allied to *Serratula*.)

Hardy herbaceous perennials, with purple flowers. Seeds, and divisions of the plant in spring; common garden-soil.

- L. Altaïca* (Altaïan). 2. August. Siberia. 1822.
 — *australis* (southern). 1. August. N. Holland. 1821.
 — *carthamoides* (carthamus-like). 2. August. Siberia. 1816.
 — *conifera* (cone-bearing). 2. July. South Europe. 1683.
 — *salsina* (salt). 1. June. Siberia. 1817.

LEVI'STICUM. (From *levo*, to assuage; said to relieve flatulency. Nat. ord., *Umbellifers* [Apiaceæ]. Linn., 5-Pentandria 1-Monogynia. Allied to *Angelica*.)

Hardy herbaceous perennial. Seeds, and divisions of the plant in spring; common soil.

- L. officinale* (shop). 6. Pale yellow. June. Italy. 1596.

LEWISIA. (Named after *Captain Lewis*, the traveller. Nat. ord., *Ficoids* [Mesembryaceæ]. Linn., 13-Polyandria 1-Monogynia.)

Hardy herbaceous perennial. Seeds, and dividing the roots in spring; light, sandy loam, with brick-rubbish.

- L. rediviva* (revived). 2. Rose. N. Amer. 1826.

LEYSSE'RA. (Named after *T. W. Leysser*, a German botanist. Nat. ord., *Compositæ* [Asteraceæ]. Linn., 19-Syngenesia 2-Superflua.)

Greenhouse evergreens, orange-flowered, and from the Cape of Good Hope, except *cupillifolia*. Cuttings of half-ripened shoots in sand, over sandy peat, in summer; peat and loam, both rough and sandy.

- L. capillifolia* (hair-leaved). 2. Yellow. June. Barbary. 1822.

- *clitellata* (hair-fringed). 12. August. 1816.
 — *gnaphaloides* (gnaphalium-like). 2. August. 1774.

- *polifolia* (plum-leaved). 12. August. 1820.
 — *squarrosa* (spreading). 2. August. 1815.

LEYCESTERIA. (Named after *W. Leysser*, once chief justice at Bengal. Nat. ord., *Caprifoliæ* [Caprifoliaceæ]. Linn., 5-Pentandria 1-Monogynia. Allied to *Symphoricarpus*.)

Half-hardy evergreen shrub. Seeds in spring; cuttings of young, short shoots in spring, under a glass, and older shoots in autumn, under a hand-lights; light, sandy soil; will require a few evergreen boughs over it in a very hard winter.

- L. formosa* (handsome). 4. White, purple. August. Nepal. 1824.

LHO'TSKYA. (Named after *Dr. John Lhotsky*, a German botanist. Nat. ord., *Fringe-myrtles* [Chamælauciaceæ]. Linn., 12-Icosandria 1-Monogynia. Allied to *Calytrix*.)

Greenhouse evergreens, from Swan River. Cuttings of young shoots, when the base is a little firm, in sand, and under a glass; loam, and a little peat and sand. Winter temp., 35° to 45°.

- L. acutifolia* (sharp-leaved). Pale yellow. June.
 — *violacea* (violet-coloured). Violet. June. 1843.

LIABUM. (Derivation not explained. Nat. ord., *Compositæ* [Asteraceæ]. Linn., 19-Syngenesia 2-Superflua. Allied to *Andromachia*.)

Stove herbaceous perennial. Division in spring; sandy loam, leaf-mould, and a little peat. Summer temp., 60° to 80°; winter, 48° to 55°.

- L. Browni* (Brown's). Yellow. June. Jamaica. 1768.

LIA'TRIS. (Derivation not known. Nat. ord., *Compositæ* [Asteraceæ]. Linn., 19-Syngenesia 1-Æqualis.)

Hardy herbaceous perennials, from North America. Division in spring; sandy loam and peat; those from Carolina require protection in winter.

- L. bellidifolia* (daisy-leaved). 2. Pink. August.
 — *borealis* (northern). 12. Pink. August.
 — *corymbosa* (corymbed). 3. Purple. September. Carolina. 1825.
 — *cylindrica* (cylindric-flowered). 4. Pink. September. 1811.
 — *elegans* (elegant). 4. Purple. September: 1787.
 — *gracilis* (slender). 12. Purple. September. Carolina. 1819.
 — *graminifolia* (grass-leaved). 3. Pink. August.

- L. heterophylla* (various-leaved). 3. Purple. July. 1790.
 — *intermedia* (intermediate). 2. Purple. September. 1823.
 — *odoratissima* (sweetest-scented). 3. Purple. September. Carolina. 1786.
 — *paniculata* (panicle). 3. Purple. August. Carolina. 1826.
 — *pilosu* (hairy-leaved). 1½. Purple. September. 1783.
 — *propinqua* (related). 2. Purple. August. 1833.
 — *pumila* (dwarf). 1. Purple. September.
 — *pycnostachya* (dense-spiked). 3. Purple. September. 1732.
 — *scariosa* (membranous). 4. Purple. July. 1739.
 — *sphaeroides* (globular-cupped). 3. Purple. September. 1817.
 — *squarrosa* (spreading). 3. Purple. July. 1732.
 — *spicata* (long-spiked). 6. Purple. September. 1732.
 — *tenuifolia* (fine-leaved). 1½. Purple. September. Carolina. 1820.
 — *turbinata* (top-form). 2. Purple. September. 1823.

LIBE'RTIA. (Named after *M. A. Libert*, a Belgian lady and botanist. Nat. ord., *Irids* [Iridaceæ]. Linn., 16. *Monadelphina* 1-*Monogynia*. Allied to the Peacock Iris.)

Half-hardy bulbs, with white flowers, thriving well in a front, outside border, if light soil. Division of the roots, and sowing the seed, in spring; loam and peat.

- L. formosa* (handsome). 1½. May. Chili. 1831.
 — *grandiflora* (large-flowered). 1½. April. New Zealand. 1822.
 — *paniculata* (panicle). 1½. April. N. Holland. 1823.
 — *pulchella* (pretty). 1. April. N. Holland. 1823.

LIBOCE'DRUS. See THU'JA.

LICHTENSTEINIA. (Named after *Von Lichtenstein*, a German botanist. Nat. ord., *Umbellifers* [Apiaceæ]. Linn., 5. *Pentandria* 1-*Monogynia*.)

Half-hardy herbaceous perennials, with blue flowers, from the Cape of Good Hope. Seeds, and division of the plant in spring; sandy loam, with a little leaf-mould; require a cold pit in winter.

- L. laevigata* (smoothed). 1. 1824.
 — *undulata* (waved-leaved). 1. July. 1814.

LICUA'LA. (From the native name. Nat. ord., *Palms* [Palmaceæ]. Linn., 6. *Hexandria* 1-*Monogynia*. Allied to *Corypha*.)

Stove Palms, from the East Indies. Seeds in strong hotbed; rich, sandy loam. Summer temp., 60° to 80°; winter, 60°.

- L. peltata* (shield-leaved). 6. White, yellow. 1825.
 — *spinosa* (spiny). 6. White, green. 1802.

LIDBE'CKIA. (Named after *E. G. Lidbeck*, a Swedish botanist. Nat. ord., *Composites* [Asteraceæ]. Linn., 19. *Syn-genesia* 2-*Superflua*. Allied to *Lasthenia*.)

Greenhouse evergreen shrubs, with yellow

flowers, from the Cape of Good Hope. Cuttings of half-ripened short shoots in April, in sandy peat, under a bell-glass; peat, with a little fibry loam, and a few pieces of charcoal and silver-sand. Winter temp., 40° to 45°.

- L. lobata* (lobed). 2. May. 1800.

— *pectinata* (comb-leaved). 2. May. 1744.

LIEBIGIA. (Named after *Liebig*, the celebrated German chemist. Nat. ord., *Gesnerworts* [Gesneraceæ]. Linn., 14. *Didynamia* 2-*Angiospermia*. Allied to *Æschynanthus*.)

Stove evergreen shrub. Cuttings of the herbaceous-like shoots in sandy soil, in heat, in spring and summer; sandy peat and fibry loam, with a little dried dung. Summer temp., 60° to 80°; winter, 55° to 60°.

- L. speciosa* (showy). 1½. White, purple. September. Java. 1845.

LIFTING is sometimes used as meaning the same as transplanting, and at others merely means passing the spade under a plant, and, by raising it up, disturbing its roots to check its luxuriance.

LIGATURES, twisted very tightly round the small branches of trees, and the stems of plants, to check the return of their sap, and thus promote their fruitfulness, and the size of the fruit, are much to be preferred to ringing, or other removals of the bark, which cause wounds and canker. Ligatures should be removed as soon as the fruit is ripened.

LIGHT has a most powerful influence over the health and life of a plant, from the moment its leaves pierce through the surface of the soil. If absent, they become yellow, or even white, unless uncombined hydrogen be present, in which case they retain their verdure. It deserves notice, that it has been proved by the experiments of Dr. Hope and others, that light from artificial sources may be concentrated so as to enable plants to absorb oxygen, and perfect those elaborations on which their green colour depends; and the light of the moon has a like influence. A similar concentrated light will make the Pimpernel and other flowers, which close until sunrise, open their petals, and rouse from their rest; a fact which gives another reason why plants in rooms frequented at night become weak and exhausted sooner than those which remain as nature dictates, unexcited by light. A deficiency of light decreases the decomposing power of the leaves. For this reason the best glass should always be employed in the sashes of the hothouse, conservatory, and other structures of the forcing department.

But the benefit sought for is frustrated if that glass be not constantly well cleansed. The best glass, if dirty, allows fewer rays of light to pass through than inferior glass if kept bright. Solar light is essential to the ripening of all fruit: it will not ripen in the dark; and the greater the light's intensity, and the longer its daily endurance, the sweeter and the higher is the fruit's flavour. No fruits are so luscious as those grown within the tropics, and the fruits of the temperate zone are excellent in proportion to the brightness of its seasons. That light is essential in causing the colour of the leaves and other parts of plants has been noticed already; and it aids the ripening process of fruit in a similar manner, to convert their acid and mucilaginous constituents into sugar. How light operates in promoting this and other decompositions which are effected by the vegetable organs is, at present, a mystery; but so it is; and the gardener promotes its access as much as lies within his power, by removing overshadowing leaves, by employing the best glass in his hothouses, and by having their interior whitened; for white surfaces reflect all the rays of light back upon the object those surfaces inclose.

LIGHTFOOTIA. (Named after the *Rev. J. Lightfoot*, a Scotch botanist. Nat. ord., *Bellworts* [Campanulacæ]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Canarina*.)

Greenhouse blue-flowered evergreens, from the Cape of Good Hope. Cuttings of young shoots in sand, containing a little peat, under a glass; fibry loam and sandy peat; pots well drained. Winter temp., 35° to 48°.

L. Loddige'sii (Loddige's). 2. July. 1822.
— *oxycoceoides* (oxycoceos-like). 2. July. 1787.
— *subulata* (awl-leaved). 2. August. 1787.

LIGULARIA. (From *ligula*, a strap; referring to the florets. Nat. ord., *Compositæ* [Asteracæ]. Linn., 19-*Syngenesia* 2-*Superflua*. Allied to *Arnica*.)

Hardy herbaceous perennials, with yellow flowers, and blooming in June. Seeds, divisions, and cuttings of the young shoots under a hand-light, in a shady corner; sandy loam, with a little leaf-mould.

L. Altaica (Altaiian). Altaia. 1837.
— *Caucasica* (Caucasian). Caucasus. 1820.
— *Sibirica* (Siberian). Siberia. 1784.
— *speciosa* (showy). Siberia. 1818.
— *thyrsoides* (thyrsé-flowered). Altaia. 1837.

LIGUSTRUM. Privet. (From *ligulare*, to tie; referring to the use made of the flexible shoots. Nat. ord., *Oliveworts*

[Oleacæ]. Linn., 2-*Diandria* 1-*Monogynia*.)

Shrubs, all with white flowers. Generally by cuttings of the young shoots in sandy loam; seeds may also be sown, either when ripe, or placed in a rot-heap for a number of months previously. The common kinds are useful for fences, and will grow under trees where scarcely anything else would live; *laucidum* and its variety, and *vestitum*, require a little protection in exposed places.

HARDY EVERGREENS.

L. Japonicum (Japanese). June. Japan. 1845.
— *laucidum* (shining). 8. June. China. 1794.
— — *floribundum* (profuse-flowered). 8. July. China. 1794.
— *vestitum* (clothed). April. Nepaul. 1840.
— *vulgaris chlorocarpum* (common-green-berried). 8. June. Britain.
— — *sempervirens* (evergreen). 8. June. Italy.

HARDY DECIDUOUS.

L. spicatum (spike-flowered). 8. June. Nepaul. 1823.
— *vulgaris* (common). 10. June. Britain.
— — *angustifolium* (narrow-leaved). 8. June. Britain.
— — *leucocarpum* (white-berried). 8. June. Britain.
— — *variegatum* (variegated). 8. June. Britain.
— — *xanthocarpum* (yellow-berried). 8. August. Italy.

LILAC. See SYRINGERA.

LILIUM. The Lily. (From the Celtic *li*, white. Nat. ord., *Lilyworts* [Liliacæ]. Linn., 6-*Hexandria* 1-*Monogynia*.)

Offsets from the bulbs; also seeds, and, in some cases, small stem-bulbs; in general, light, rich, sandy loam; some, however, as those from America and Japan, like the addition of some fibry peat, and the latter are generally the better for a cold pit treatment in winter, though they will do in a bed well-drained.

GREENHOUSE BULBS.

L. atro-sanguineum (dark-blood-coloured). 2. Dark red. July. Japan. 1835.
— — *maculatum* (spotted). Orange, red. August. Japan.
— *coruscans* (glittering). 2. Scarlet. August. 1834.
— *extimum* (splendid). 4. White. July. Japan. 1834.
— *giganteum* (gigantic). 10. White. July. Himalaya. 1852.
— *lanceifolium* (spear-leaved). White. June. Nepaul. 1824.
— — *roseum* (rosy). White, pink. June. Nepaul.
— *roseum* (rose-coloured). 12. Purple. April. Missooree.
— *speciosum* (showy). 2. Orange. August. Japan. 1833.
— — *album* (white-flowered). 3. White. July. Japan. 1833.
— — *Kämpferi* (Kämpfer's). 3. Rose, purple. July. Japan. 1833.
— — *punctatum* (spotted-flowered). 3. White-spotted. July. Japan. 1835.
— — *rubrum* (red-flowered). 3. Rose. July. Japan. 1833.
— *testaceum* (light brown). 3. Pale orange, red-spotted. June. Japan. 1841.
— *Thompsonianum* (Dr. Thompson's). 3. Rose. April. Missooree. 1843.

- L. Thunbergia* (Thunberg's). 1½. Orange, scarlet. July. Japan. 1835.
 — *voluta* (twining). Crimson. July. 1830.
 — *Wallichia* (Wallich's). 5. Greenish-white. October. Nepal. 1850.

HARDY BULBS.

- L. Andinum* (Andes). 4. Scarlet. July. N. Amer. 1819.
 — *aurantiacum* (light orange). Orange. July. Japan. 1835.
 — *aurantium* (orange). 3. Dark orange. June. Italy. 1835.
 — *flo're-ple'no* (double-flowered). 3. Dark orange. June.
 — *minus* (small). 2. Orange. June.
 — *variegatum* (variegated-leaved). 2. Dark orange. June.
 — *Buschia* (Busch's). 1. Orange. June. Siberia. 1829.
 — *Canadense* (Canadian). 4. Light orange. July. N. Amer. 1829.
 — *rubrum* (red-flowered). 4. Orange. July. N. Amer. 1829.
 — *candidum* (white). 3. White. June. Levant. 1596.
 — *punctatum* (spotted-flowered). 4. White, purple. June. Nepal. 1835.
 — *spicatum* (spiked). 4. White. June.
 — *striatum* (channelled-flowered). 4. White. June.
 — *variegatum* (variegated). 4. White. June.
 — *Carolinianum* (Carolina). 2. Orange. July. N. Amer. 1819.
 — *Catesbaei* (Catesby's). 1. Scarlet. July. China. 1806.
 — *Chalcedonicum* (Chalcedonian). 4. Scarlet. July. Levant. 1796.
 — *coloratus* (one-coloured). 2. Red. July. China. 1806.
 — *croceum* (saffron). 3. Yellow. July. 1596.
 — *excelsum* (tall). Striped. July. Japan.
 — *glabrum* (smooth). 4. Orange. June. 1596.
 — *Japonicum* (Japan). 2. White. July. China. 1804.
 — *latifolium* (broad-leaved. *Bulbiferous*). 2. Orange. July. Europe. 1820.
 — *longifolium* (long-leaved). White. May. China. 1820.
 — *martagon* (martagon). 3. Purple. July. Germany. 1596.
 — *albopleno* (double-white). 3. White. July. Germany.
 — *dorsipunctatum* (spotted-backed). 3. Purple. June.
 — *elatum* (tall). 3. Purple. June.
 — *ocellare* (eyed). 3. Lilac. June.
 — *palidum* (pale). 3. Lilac. June.
 — *perpurpureum* (deep purple). 3. Dark purple. June.
 — *petiolare* (petioled). 3. Purple. June.
 — *pubescens* (downy). 3. Orange. June. Germany. 1596.
 — *purpureum* (purple). 3. Purple. June.
 — *sepalis-albis* (white-sepaled). 2½. White. July. Germany.
 — *sepalis-plurimis* (double-flowered). 3. Purple. July. Gardens.
 — *monadelphum* (monadelphous). 2. Yellow. June. Caucasus. 1820.
 — *Nepalense* (Nepalese). 3. White. July. Nepal. 1825.
 — *penduliflorum* (pendulous-flowered). 1. Copper-coloured. June. N. Amer. 1820.
 — *peregrinum* (straggling). 4. White. June. Cape of Good Hope. 1824.

- L. Philadelphicum* (Philadelphian). 5. Scarlet. July. N. Amer. 1757.
 — *pompomum* (scarlet-pompon). 2. Red. May. Siberia. 1659.
 — *flo're-ple'no* (double-flowered). 3. Red. June.
 — *pulchellum* (pretty). Scarlet. Dahuria. 1829.
 — *pumilum* (dwarf). 1. Scarlet. July. Dahuria. 1816.
 — *Pyrenaicum* (Pyrenean). 2. Dark orange. July. Pyrenees. 1596.
 — *flo're-ple'no* (double-flowered). 2. Yellow. July.
 — *sanguineum* (blood-coloured). Orange, red. July.
 — *Sibiricum* (Siberian). 2. Yellow. July. Siberia.
 — *spectabile* (showy). 2. Light orange. June. Dahuria. 1754.
 — *tenuifolium* (fine-leaved). 2. Scarlet. June. Siberia. 1820.
 — *tigrinum* (tiger-spotted). 6. Orange. July. China. 1804.

LILIUM CANDIDUM. Common White Lily.

Propagation.—By offsets. When the old bulbs have several small ones formed around them, take them up in September, divide them into single bulbs, replant the large flowering-bulbs immediately into fresh, rich earth, where they are to flower. The small bulbs plant in a bed of the same kind of soil, in some corner by themselves; let them remain here for two years, then take them up, select the large bulbs, and plant them where they are to flower, taking care to enrich the earth with well-decomposed manure. The small ones may be replanted again till they are the same size, and should then be taken up and planted in the borders to bloom.

The Soil should be well drained, and fresh, maiden loam, made rich with a good coating of manure, and dug over two or three times previously to the planting season.

Winter Culture.—When the stools of bulbs have become large, they will have exhausted the soil, and it will be advisable to take them up, divide them, then dig holes, taking away the old exhausted soil, and put at the bottom of each hole a shovelful of rotten dung; fill up with fresh earth, and plant immediately three strong bulbs in each hole, covering them about three inches deep. The best time to do this is in September, and the reason for planting immediately is because these bulbs will not bear exposure to the air without injury. By this treatment they will flower well the next season, but much finer the second.

Insects.—The most troublesome are

the WIREWORM and the common GARDEN-SLUG, which see. Whenever a leaf is observed to droop, the grub will be found to be the cause. Gently remove the earth near the drooping leaf, and the enemy will be discovered at work.

Diseases.—The canker sometimes attacks the bulbs. This disease arises from too much moisture in the soil. This must be corrected by draining. All cankered bulbs should be taken up and thrown away, to prevent the contagion from becoming general.

LI'LIIUM MA'RTAGON. Martagon, or Turk's-cap Lily. The propagation of all the varieties of this species is the same as described above for *L. ca'ndidum*. The soil, however, should be liberally mixed with sand. Some species, such as *L. co'ncolor* and *L. supe'rbum*, require a considerable quantity of sandy peat mixing amongst the soil.

LI'LIIUM TIGRI'NUM, Tiger Lily; and *L. BULBI'FERUM* or *AURA'NTIUM*, the Orange Lily, produce at the axils of the leaves of the flower-stem a considerable number of small embryo bulbs. These afford a ready way of propagating them. Gather the bulbs as soon as they part readily from the stem; prepare a bed for them, by digging it over, and adding some well-rotted dung. Plant them in rows across the bed at three inches apart in the row, and nine inches from row to row. Let them remain in this bed for two or three years, then take them up, sort the bulbs into two sizes, plant the largest in a bed of rich earth, six inches apart in the row, and a foot between each row. Several of them will flower weakly the first year, but stronger the second, and will then be large enough to take their place amongst the old strong bulbs. The smaller-sized bulbs should be planted again rather thickly, and will afford a second crop of flowering bulbs the second year. The other points of summer and winter culture are similar to those required by *L. ca'ndidum*, excepting in one particular. As the flower-stems advance in growth, they put forth a number of young roots from the stem above the bulb; when that is perceived, place round each stem some rough, hard pieces of dung for these roots to strike into; this will encourage the flower-stems to grow strongly, and flower finely, besides increasing very much the size of the bulbs below.

LI'LIIUM LANCIFO'LIIUM and its varieties,

puncta'tum and *specio'sum*. This is the finest of all the genus. The petals turn back, like those of the *L. ma'rtagon*. It throws out roots above the bulbs like *L. tigri'num*, but does not produce incipient bulbs in the axils of the leaves, like the latter species, and must, therefore, be propagated like *L. ca'ndidum*, by offsets. This fine species, in the southern parts of Britain, is hardy enough to bear cultivating in the open air, like the rest of the genus; but it is worthy of being cultivated in pots to bloom in the greenhouse, everywhere in this country, flowering in June and July, when the generality of the usual inhabitants are enjoying the open air. To cultivate it for that purpose, pot the larger bulbs in eleven-inch pots. If bulbs are plentiful, put three in each pot. Do this early in March, and use a rich, sandy compost. Place them in a pit or frame sheltered from frost, by covering with mats, giving plenty of air in mild weather, but very little water. *Grow them as slowly as possible*, so that they may have a large strength of roots to cause a strong growth. When the frosts are over, plunge them in a bed of old tan till the greenhouse is thinned of its plants, and then bring them into their place; put pans under the pots, and a mulching of dung on the surface of the soil. Water freely, and give plenty of air. The culture in the air is the same as is required by *L. ca'ndidum*, with the addition of a covering of dry ashes over the bulbs in winter.

LILY. Li'lum.

LILY-HYACINTH. Sci'lla'li'lia-hyaci'nthus.

LILY-OF-THE-VALLEY. (Convulla'ria ma'ja'lis.) We know a garden where no one can flower the lily-of-the-valley well, and we also know places where it flowers in the greatest abundance without any care whatever. We have seen it growing naturally by the aere, in a shady wood, the soil being mere sand, enriched by the fallen leaves; we have dug it out in that wood, and found all the roots within three inches of the surface. We have also seen it flower abundantly on a south border, in a rich kitchen-garden soil. Where it refuses to succeed we would make a bed for it on the north side of a wall; dig out the natural soil a foot deep, and drain the bottom; then fill up the bed with a compost of light, sandy earth and rotten leaves, half of each; press it down gently when within two inches of the top;

then lay the roots regularly, four inches apart, all over this surface, and then cover them two inches deep, and give them a good watering with a rose-pot; and, after that, we would cover the whole with an inch of quite rotten leaves, and water them once a week the following summer. February, or early in March, is the best time to plant them; and the third season they are in full perfection, and will last for ten or a dozen years.

Forcing.—Pot them in thirty-two-sized pots, filled to within three and a half inches of the rim with rich loam, upon which the roots are closely placed, and then covered about two inches in thickness with equal parts of leaf-mould and sand; they are then well watered, so as to settle the mould about the roots; place them on a shelf near the glass, in a moist stove or forcing-house, the temperature of which may range from 65° to 75°, and take care that the soil does not become dry. When they are so far advanced that the plants show their heads of flowers, remove them into a warm greenhouse, still placing them near the glass, until, as they advance in growth, they are withdrawn by degrees into a shaded part of the house, from whence they are removed to the drawing-room as required, their places to be immediately filled with others, which are similarly treated, and thus an ample succession will be kept up. Care and attention are requisite in lifting and selecting the plants for forcing; they require a minute examination to distinguish those that will flower from those that will not, the only difference being that the buds of the former are more round and short than those of the latter.—*Florists' Journ.*

LILY-PINK. *Aphyllanthus*.

LILY-THORN. *Catesbaea*.

LIME. *Citrus lime'tta*.

LIME is valuable as a manure, for some one or more of its salts enter into the composition of every vegetable. But it is not the lime of every district that is suitable for the purpose. Some specimens contain a very large proportion of magnesia, which, absorbing carbonic acid very slowly, remains in a caustic state, to the injury of the roots of the plants, and the diminution of benefit from the carbonic acid evolved by the decomposing constituents of the soil. Neither can the gardener apply it to all his soils with

advantage. Thus, peat and bog earth are beneficial to the plants grown upon them by their containing Gallic and other acids, which lime removes. To garden-soil of the usual staple about fifty bushels of lime per acre is a sufficient quantity. If the soil be clayey the quantity may be doubled. A very excellent manure is formed by mixing one bushel of salt with every two bushels of lime. Lime cannot be applied to the soil too fresh from the kiln; for if allowed to absorb carbonic acid from the air, it is rapidly converted into chalk.

When crops are devastated by the slug, dress them, some evening, so as to render the surface of the soil quite white, with caustic lime, during the promise of a few days' dry weather. It is instant destruction to every slug it falls upon; and those that it misses are destroyed by their coming in contact with it when moving in search of food.

Lime-rubbish is the old mortar and plaster obtained when brick-buildings are pulled down. It is an excellent manure, abounding with the salts of potash and lime. It should be reduced to powder before spreading and digging in.

LIME, or LINDEN-TREE. *Tilia*.

LIME-LOOPER MOTH. *Geometra*.

LIME-WATER. To forty gallons of clean water, half an hour before using, put one peck of fresh-slaked lime. As soon as it is clear it is fit for use.

A watering-pot containing four gallons will water a bed of four feet by thirty feet, or rows of cauliflowers, cabbages, &c., of double the length.

LIMNA'NTHEA. (From *limne*, a marsh, and *anthos*, a flower. Nat. ord., *Indian Cresses* [Tropæolaceæ]. Linn., 10-*Decandria* 1-*Monogynia*.)

Hardy trailing annuals, from California. Seeds in April, in a moist and shady situation.

L. alba (white). ♀. White. July. 1843.

— **Douglasii** (Douglas's). 1. Yellow. July. 1835.

— **rosea** (rosy). ♀. Pink. July. 1833.

LIMNOCHARIS. (From *limne*, a marsh, and *charis*, to delight in; water-plants. Nat. ord., *Butomads* [Butomaceæ]. Linn., 13-*Polyandria* 1-*Monogynia*.)

Stove, perennial, yellow-flowered aquatics, from Brazil. Divisions, runners, and seeds; tubs or cisterns, in a stove, or the shallow part of an aquarium. Summer temp., 60° to 90°; winter, 55° to 60°.

L. Humboldtii (Humboldt's). 1½. May. 1831.

— **Plumieri** (Plumier's). 1½. July. 1822.

LIMONIA. (From *limoun*, the Arabic

name of the citron. Nat. ord., *Citron-worts* [Aurantiaceæ]. Linn., 10-*Decandria* 1-*Monogynia*.)

Evergreens, with white flowers. Seeds in a hot-bed, and seedlings grafted the same season, with the most desired varieties; cuttings of any shoots, young or ripened, in spring or summer, in sandy soil, under glass, and in a few weeks plunged in bottom-heat; peat, loam, dried cow-dung, and a few pieces of charcoal. For *crenula'ta*, winter temp., 35° to 45°; summer, 60° to 80°; the others will succeed against a wall, in the south of England, protected in winter; and in other districts they require a greenhouse.

L. australis (southern). 25. N. Holland. 1830.
— *citrifolia* (orange-leaved). 4. China. 1800.
— *crenula'ta* (scalloped-leaved). 4. E. Ind. 1808.
— *parviflora* (small-flowered). 6. China.
— *scandens* (climbing). 6. China. 1800. Climber.

LIMOSE'LLA. Mudwort. (From *limus*, mud; where it grows. Nat. ord., *Figworts* [Scrophulariaceæ]. Linn., 14-*Didynamia* 2-*Angiospermia*. Allied to *Sibthorpia*.)

Hardy annual. Seeds in a marsh, or near a pond or rivulet.

L. aquatica (water). 4. Flesh. August. Britain.

LINA'NTHUS. (From *linon*, flax, and *anthos*, a flower. Nat. ord., *Phloxworts* [Polemoniaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*.)

Hardy annual. Seeds in the open border, in spring.

L. dichotomus (forked - branched). 14. Pink. California. 1838.

LINA'RIA. Toadflax. (From *linon*, flax; referring to the resemblance of the leaves. Nat. ord., *Figworts* [Scrophulariaceæ]. Linn., 14-*Didynamia* 2-*Angiospermia*. Allied to *Antirrhinum*.)

All by seed at the end of March, and the perennials also by division, and cuttings of the young shoots under a hand-light, in sandy soil; light, sandy loam suits them all. A few like a cold pit in winter; they are good rock-work plants.

HALF-HARDY HERBACEOUS, &c.

L. alpina (alpine). 1. Blue. July. Austria. 1750.
— *bipartita* (two-parted). 4. Purple. August. Barbary. 1815.

— *circinata* (curled-leaved). 3. Yellow. June. N. Africa. 1833. Evergreen.

— *Dalmatica* (Dalmatian). 14. Yellow. June. Levant. 1731. Evergreen.

— *fruticans* (sprouting). 1. Yellow. June. Cape of Good Hope. 1822. Evergreen.

— *origanifolia* (marjoram-leaved). 1. Blue. August. South Europe. 1785.

— *reticulata* (net-flowered). 14. Purple. June. Algiers. 1788.

— *scoparia* (broom). 1. Yellow. June. Tene-riffe. 1816. Evergreen.

— *triornithophora* (three-birds-bearing). 1. Purple. August. Portugal. 1710.

— *villosa* (shaggy). 1. Blue. July. Spain. 1786.

HARDY EVERGREENS.

L. acutifolia (acute-lobed). 4. Purple. August. Siberia. 1825.

— *aquifolia* (equal-three-lobed). 4. Purple. June. Sardinia. 1829.

L. cymbalaria (cymbalaria). 4. Violet. May. England.

— *alba* (white). 4. White. June. Gardens.

— *variegata* (variegated-leaved). 4. Violet. June. Gardens.

— *pilosella* (hairy-leaved). 4. Purple. August. Pyrenees. 1800.

— *pubescens* (downy). 4. Pale. August. Naples. 1820.

— *canariensis* (rock). 4. Yellow. August. Spain. 1819.

HARDY HERBACEOUS.

L. galioides (galium-like). 2. Blue. July. South Europe.

— *genistifolia* (broom-leaved). 2. Yellow. July. Austria. 1704.

— *heterophylla* (variable-leaved). 14. Yellow, brown. July. N. Africa. 1825.

— *hians* (gaping). 1. Yellow. July. South Europe. 1818.

— *linifolia* (flax-leaved). 1. Yellow. July. Caucasus. 1820.

— *macrorrhiza* (long-tailed). 1. Yellow. August. Crimea. 1822.

— *marginata* (margined). Yellowish. August. Barbary. 1820.

— *monspeliensis* (Montpelier). 3. Blue. July. France.

— *alba* (white). 2. White. July.

— *procera* (tall). 4. Pale blue. July.

— *purpurea* (purple). 1. Purple. August. South Europe. 1648.

— *silentifolia* (silene-leaved). 3. Yellow. July. Armenia. 1819.

— *tristis* (dark). 1. Brown. July. Spain. 1727.

— *lutea* (yellow). 1. Yellow. August. Gardens.

— *venosa* (veined). Yellow, brown. May. India. 1839.

— *vulgaris pelorica* (common peloria). 1. Yellow. August. Britain.

HARDY ANNUALS.

L. Egyptiaca (Egyptian). 14. Yellow, purple. July. Egypt. 1771.

— *alsinifolia* (alsine-leaved). 4. Blue. June. Corsica. 1824.

— *amethystina* (amethystine). 1. Blue, yellow. July. Spain. 1728.

— *arenaria* (sand). 4. Yellow. July. South Europe. 1823.

— *arvensis* (corn). 1. Purple, blue. July. South Europe.

— *bipunctata* (two-dotted). 1. Yellow. July. Spain. 1749.

— *canadensis* (Canadian). 1. Violet. July. N. Amer. 1812.

— *caucasica* (Caucasian). 4. Yellow. July. Caucasus. 1818.

— *chalepensis* (Aleppo). 1. White. June. Levant. 1680.

— *cirrheola* (tendriled). 4. Pale blue. July. Egypt. 1771.

— *cretaea* (chalky). 1. July. Siberia. 1827.

— *dealbata* (whited). 4. Yellow. August. Portugal. 1820.

— *delphinoides* (larkspur-like). 14. Blue. August. Russia. 1838.

— *diffusa* (spreading). 4. July. Spain. 1826.

— *elatina* (elatine-like). 4. Yellow. August. South Europe. 1831.

— *flava* (yellow). 4. Yellow. July. N. Africa. 1820.

— *glandulifera* (glanded). Purple. May. 1839.

— *hirta* (hairy-leaved). 1. Purple. August. Spain. 1759.

L. lanifera (woolly). 4. Yellow. July. Portugal. 1818.

— *losei* (Losei's). 1. Blue. July. Tauria. 1823.

— *multicaulis* (many-stalked). 14. White. June. Levant. 1728.

— *Pelissieria* (Pelissier's). 1. Violet. August. South Europe. 1640.

— *purpurea* (purplish). 14. Purple. June. South Europe. 1829. Biennial.

— *Pyrenaica* (Pyrenean). 1. Yellow. June. Pyrenees. 1821.

— *rubrifolia* (red-leaved). 1. Blue. June. South France. 1826.

— *simplex* (simple). 1. Purple. July. South Europe. 1816.

— *spartea* (broom-like). 1. Yellow. August. Spain. 1772.

— *thymifolia* (thyme-leaved). 4. Blue. June. South Europe. 1818.

— *triphylla* (three-leaved). 1. Yellow, purple. August. Sicily. 1596.

— *versicolor* (various-coloured). 1. Purple, yellow. August. France. 1777.

— *virgata* (twiggy). 4. Blue. June. N. Africa. 1817.

— *viscosa* (clammy). 1. Brown. July. Spain. 1786.

LINCO'NIA. (A commemorative name. Nat. ord., *Bruniads* [*Bruniaceæ*]. Linn., 5-*Pentandria* 2-*Digynia*. Allied to *Brunia*.)

Greenhouse evergreen shrubs, with white flowers, from Cape of Good Hope. For culture, see *DIO'SMA*.

L. alopecuroides (fox-tail-like). 2. May. 1816.

— *cuspidata* (pointed-leaved). 2. May. 1825.

— *thymifolia* (thyme-leaved). 2. May. 1825.

LINDLEYA. (Named after Professor Lindley. Nat. ord., *Roseworts* [*Rosacææ*]. Linn., 12-*Icosandria* 2-*Pentagynia*. Allied to *Quillaja*.)

Stove evergreen shrub. By seeds; ripe cuttings under a glass, in bottom-heat, and grafting on the Hawthorn. The same generic name is applied to very different plants, among the *Theads* and *Samyds*.

L. mespiloides (medlar-like). 12. White. July. Oaxaca. 1843.

LINDSÆA. (Named after M. Lindsay, an English botanist. Nat. ord., *Ferns* [*Polypodiaceæ*]. Linn., 24-*Cryptogamia* 1-*Filices*.)

Ferns, with brown spores. For culture, see *FERNs*.

STOVE.

L. adiantoides (maiden-hair-like). July. Isle of Luzon. 1840.

— *concinna* (neat). July. Isle of Luzon. 1842.

— *cultrata* (knife-shaped). July. Isle of Luzon. 1840.

— *decomposita* (decomposed). July. Malacca.

— *elegans* (elegant). July. E. Ind. 1840.

— *falcata* (sickle-shaped). 4. May. Trinidad. 1819.

— *Guianensis* (Guianan). May. Guiana. 1845.

— *oblongifolia* (oblong-leaved). July. E. Ind.

— *reniformis* (kidney-shaped-leaved). July. Trinidad. 1826.

— *rigida* (stiff). 1. July. Malacca. 1839.

— *stricta* (upright). July. Malacca. 1839.

— *tenera* (tender). Malacca.

— *trapeziformis* (diamond-shaped). 1. May. S. Amer. 1819.

GREENHOUSE.

L. linearis (narrow-leaved). 4. May. N. Holland. 1820.

— *media* (intermediate). 1. May. N. Holland. 1823.

— *microphylla* (small-leaved). 4. May. N. Holland. 1820.

LING, or LING-HEATHER. *Calluna vulgaris*.

LININGS, or, as they might be more properly called, *Coatings*, are applications of fermenting dung to renew the heat in hotbeds made of dung. See *HOTBED*.

LINNÆA. (Named after Linnæus. Nat. ord., *Caprifoliæ* [*Caprifoliaceæ*]. Linn., 14-*Didynamia* 2-*Angiospermia*. Allied to *Abelia*.)

Hardy trailer. Plants are easily obtained from its trailing-rooted stems. It should, whether in the front of a border or in a good sized pot, be grown solely in peat or heath-soil, kept shady and moist.

L. borealis (northern). 4. Flesh. June. Scotland.

LINO'SYRIS. (Derivation not given. Nat. ord., *Compositæ* [*Asteracææ*]. Linn., 19-*Syngenesia* 2-*Angiospermia*. Allied to *Chrysocoma*.)

Hardy herbaceous perennial. Division of the plant in spring; common soil.

L. divaricata (spreading). Yellow. July. Australia.

LI'NUM. Flax. (From *linon*, flax. Nat. ord., *Flaxworts* [*Linacææ*]. Linn., 5-*Pentandria* 5-*Pentagynia*.)

Annuals and biennials, by seed in the open border, in April; perennials, by seed, but principally by divisions in spring, and cuttings of young shoots under a hand-light; hardy shrubs, by cuttings in sandy soil, under a hand-light, in summer; greenhouse shrubs, cuttings in sand, under a bell-glass; for the latter, peat and loam. Winter temp., 38° to 45°. Many, however, such as *arborescens*, *salsoloides*, *Tau'ricum*, &c., will thrive in the border, in the climate of London, with but little protection.

GREENHOUSE EVERGREENS.

L. Æthiopicum (Ethiopian). Yellow. June. Cape of Good Hope. 1771.

— *Africanum* (African). 1. Yellow. June. Cape of Good Hope. 1771.

— *arborescens* (tree). 2. Yellow. May. Candia. 1788.

— *Cumingi* (Cuming's). 4. White. July. Chili. 1830.

— *quadrifolium* (four-leaved). 2. Yellow. May. Cape of Good Hope. 1787.

— *suffruticosum* (sub-shrubby). 1. Pink. August. Spain. 1759.

— *trigynum* (three-styled). 2. Yellow. June. E. Ind. 1799.

HARDY ANNUALS AND BIENNIALS.

L. aureum (golden). 4. Yellow. June. Hungary. 1820.

— *Berendieri* (Berendier's). 2. Yellow, orange. September. Bijar. 1835. Half-hardy.

— *bicolor* (two-coloured). 14. Yellow, blue. June. Morocco. 1820.

— *rigidum* (stiff-leaved). 1. Pale yellow. July. Missouri. 1807.

- L. strictum* (erect). 1. Yellow. June. South Europe. 1759. Biennial.
— *usitatissimum* (most-common. *Common Flax*). 1½. Blue. June. Britain.

HARDY EVERGREENS.

- L. salsoloides* (salsola-like). 1. Pink. June. South Europe. 1810.
— *Tauricum* (Taurian). 1½. Yellow. June. Tauria. 1818.

HARDY HERBACEOUS.

- L. agreste* (field). 2. Lilac. Portugal. 1836.
— *alpinum* (alpine). ½. Blue. July. Austria. 1739.
— — *album* (white). White. July. Gardens.
— *altaicum* (Altaic). 1. Blue. July. Altai. 1829.
— *Anglicum* (English). 2. Blue. June. England.
— — *album* (white-flowered). 2. White. June. Gardens.
— *angustifolium* (narrow-leaved). 1. Purple. July. England.
— *ascyrfolium* (ascyrum-leaved). 1. White. June. Portugal. 1800.
— *Austriacum* (Austrian). 1. Blue. June. Austria. 1775.
— *campanulatum* (bell-flowered). ½. Yellow. July. Europe. 1795.
— *capitatum* (round-headed). 1. Yellow. June. Austria. 1816.
— *Dahuricum* (Dahurian). 1. Yellow. June. Dahuria. 1816.
— *decumbens* (lying-down). 1½. Red. June. N. Africa. 1817.
— *diffusum* (spreading). ½. Blue. June. 1823.
— *flavum* (yellow). ¾. Yellow. July. Austria. 1793.
— *grandiflorum* (large-flowered). 1. Crimson. June. North Africa. 1820.
— *hirsutum* (hairy). 1½. Blue. July. Austria. 1759.
— *hypericifolium* (St. John's-wort-leaved). 1½. Purple. June. Caucasus. 1807.
— *Lewisii* (Lewis's). 3. Blue. June. N. Amer. 1820.
— *marginatum* (white-margined). 1½. Blue. June. 1810.
— *maritimum* (sea). 2. Yellow. July. South Europe. 1596.
— *Mexicanum* (Mexican). June. Mexico. 1838. Half-hardy.
— *monogynum* (united-styled). 2. White. July. New Zealand. 1822.
— *montanum* (mountain). 1. Blue. June. Switzerland. 1817.
— *Narbonense* (Narbonne). 2. Blue. May. South France. 1759. Half-hardy.
— *nerosum* (nerved). 1½. Blue. June. Hungary. 1822.
— *nodiflorum* (knotted-flowered). ½. White. May. Italy. 1759.
— *palleascens* (palish). 1. Lilac. January. Siberia. 1831.
— *reflexum* (bent-back-leaved). 1½. Blue. July. South Europe. 1777.
— *Sibiricum* (Siberian). 2. Blue. June. Siberia. 1775.
— *squamulosum* (scaly). 1½. Blue. July. Tauria. 1819.
— *tenuifolium* (slender-leaved). 1½. Pink. June. Europe. 1759.
— *viscosum* (clammy). 2. Purple. July. 1818.
— *Virginianum* (Virginian). 1. Yellow. July. N. Amer. 1807.

LION'S EAR. *Leono'tis*.LION'S FOOT. *Leontopodium*.LION'S TAIL. *Leono'tis leonurus*.

LIPARIA. (From *liparos*, unctuous; referring to the shining leaves. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 17-*Diadelphia* 4-*Decandria*. Allied to Priestleya.)

Greenhouse evergreens, with orange flowers, from Cape of Good Hope. Cuttings of young shoots in sand, under a bell-glass, but care taken to prevent damping; fibry loam and turfy peat, with sand and a little charcoal; watering and draining carefully attended to. Winter temp., 40° to 48°.

L. parrina (small). 2. March. 1848.

— *sphaerica* (globe-flowered). 4. July. 1794.

LIPARIS. (From *liparos*, unctuous; referring to the leaves. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-*Gynandria* 1-*Monandria*.)

Stove orchids. Fibry peat, sphagnum, charcoal, and broken pots, in shallow, open baskets. Summer temp., 60° to 90°; winter, 55° to 60°. There are some hardy terrestrial species not worth cultivating.

L. a'nceps (two-edged). Yellowish-green. China. 1837.

— *discolor* (two-coloured). Green, brown. May. Demerara. 1836.

— *e'legans* (elegant). E. Ind.

— *ferruginea* (rusty-lipped). Green. January. Penang. 1848.

— *flavescens* (yellowish). Yellow. Bourbon.

— *foliosa* (leafy). ½. Green. September. Mauritius. 1823.

— *priochilus* (saw-lipped). Orange. July. China. 1830.

— *purpureascens* (purplish). Purple. Bourbon.

— *Walkeria* (Mrs. Walker's). ½. Purple. Ceylon.

LIPOSTOMA. (From *leipo*, to fall off, and *stoma*, mouth; referring to the lid of the capsule. Nat. ord., *Cinchonads* [Cinchonaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to Pentas.)

Stove evergreen trailer. Cuttings of half-ripened shoots in sand, under a glass, in heat; turfy loam and fibry peat. Summer temp., 60° to 80°; winter, 50° to 55°.

L. campanuliflora (bell-flowered). ½. Blue. July. Brazil. 1825.

LIQUIDAMBAR. (From *liquidus*, liquid, and *ambar*, amber; referring to the gum called liquid storax produced by some species. Nat. ord., *Liquidambers* [Altingiaceæ]. Linn., 21-*Monæcia* 9-*Polyandria*.)

Hardy deciduous trees. Cuttings, but layers chiefly; also by imported seeds, which should not be taken out of the catkins until they are to be sown; if exposed to sun or fire-heat, the catkins crack, and the seeds easily shake out. They often require a year to send up their seedlings; moist, loamy soil.

L. imberbe (beardless. *Oriental*). 6. March. Levant. 1759.

— *styraciflua* (storax-flowing. *Sweet Gum*). 60. March. N. Amer. 1683.

LIQUID-MANURE is the most advan-

teagueous form in which fertilizers can be applied by the gardener to his crops. It is the most economical, most prompt, and most efficient mode. The manure is presented to the roots in one of the only forms in which the roots can imbibe food, and the manure is spread regularly through the texture of the soil. If, instead of digging-in stable-manure, each crop was watered occasionally with liquid-manure, the produce would be finer and more abundant.

"I have often employed with decided effect, in my own garden, for vines, peach, and standard apple-trees, liquid-manure, prepared either by mixing one part by weight of cow-dung with four parts of water, or the collected drainage of the stable and cow-house. It has been found advantageous to plants cultivated in stoves to apply even a liquid-manure, composed of six quarts of *snot* to a hog-head of water; and although this is a very unchemical mixture, yet it has been found by Mr. Robertson to be peculiarly grateful and nourishing to pines, causing them to assume an unusually deep, healthy green; and, for stoved mulberry, vine, peach, and other plants, the late Mr. Knight, of Downton, employed a liquid-manure, composed of one part of the dung of domestic poultry and four to ten parts of water, with the most excellent result."—*Johnson on Fertilizers*.

Guano Liquid-Manure.—Ten gallons of water will readily dissolve, or keep suspended in a state of minute division, about 50lbs. weight of guano. When applied to plants not more than five ounces should be added to that quantity of water. If it be made stronger, it injures or kills the plants to which it is applied.

Sheep's-dung, if employed for making liquid-manure, should be a peck to thirty gallons.

When cow-dung is used, boiling water should be first poured upon it, as it is apt to be full of destructive larvæ.

Sulphate of ammonia, and any other salt of ammonia, must not be used more than a quarter of an ounce to each gallon.

The rule applicable to all these liquid-manures is—*Give it weak and often*.

Liquorice. *Glycyrrhiza*.

LIRIODENDRON. Tulip-tree. (From *lirion*, a lily, and *dendron*, a tree. Nat. ord., *Magnoliads* [*Magnoliaceæ*]. Linn., 13-Polyandria 6-Polygynia.)

Hardy deciduous tree, with yellow and red flowers, from North America. Generally by seeds, which, if sown in the autumn, usually come up the succeeding spring, but if sown in spring, generally remain a year in the ground; varieties by layers, grafting, and budding; deep, rich, loamy soil.

L. tulipifera (tulip-bearing). 60. June. 1663.
— *obtusifolia* (blunt-leaved). 60. June. 1663.

LISIA'NTHUS. See **LISYA'NTHUS**.

LISSA'NTHE. (From *lissos*, smooth, and *anthos*, a flower. Nat. ord., *Epacrids* [*Epacridaceæ*]. Linn., 5-Pentandria 1-Monogynia. Allied to *Leucopogon*.)

Greenhouse evergreen shrubs, with white flowers, except *verticillata*, and all from New Holland. Cuttings of the points of shoots in April and May, in sand, under a bell-glass; chiefly sandy, fibry peat. Temp., 40° to 45°, when resting and flowering; a higher temperature and a closer atmosphere, when making their wood, after flowering and pruning.

L. ciliata (hair-fringed). 3. June. 1825.
— *Daphnoides* (Daphne-like). 3. June. 1818.
— *savida* (savoury). 4. June. 1824.
— *stellata* (starry). April. 1836.
— *strigosa* (bristly). 3. June. 1824.
— *subulata* (awl-shaped). 2. May. 1823.
— *verticillata* (whorled). Purple. April.

LISSOCH'LUS. (From *lissos*, smooth, and *cheilos*, a lip. Nat. ord., *Orchids* [*Orchidaceæ*]. Linn., 20-Gynandria 1-Monandria. Allied to *Cyrtopera*.)

Stove orchids. Division in spring, when fresh growth commences and potting takes place; fibry peat, a little fibry loam, dried leaf-mould, and plenty of drainage. Summer temp., 60° to 90°; winter, 55° to 60°.

L. luteus (yellow). 1½. Yellow. May. Cape of Good Hope. 1822.
— *parviflorus* (small-flowered). 1. Pale red. December. Algoa Bay. 1822.
— *roseus* (rosy). Rose. February. Sierra Leone. 1841.
— *speciosus* (showy). 2. Yellow. June Cape of Good Hope. 1818.
— *streptopetalus* (twisted-petaled). Yellow. December. Cape of Good Hope. 1826.

LISTS, for fastening trees against walls, are usually merely shreds of woollen cloth cut into lengths, varying from two to four inches. Strips of very thin sheet-lead are preferable, as not harbouring insects. Wires and twine have been recommended to tie the branches to the walls; but the process is tedious, and cuts are inflicted, inducing gum and canker. Shreds of a black, blue, or red colour look best, harmonizing with that of the leaves. If old lists are re-employed, they should be previously boiled, to destroy the larvæ of insects.

LISYA'NTHUS. (From *lysis*, the termination of a disease, and *anthos*, a flower; referring to its intense bitterness. Nat.

ord., *Gentianworts* [*Gentianaceæ*]. Linn., 5-Pentandria 1-Monogynia.)

Seeds in spring, in a hotbed, and cuttings of shrubby kinds in sandy soil, under a bell-glass; sandy loam and peat. Summer temp., 60° to 80°; winter, 50° to 55°. *Russelia'nus*, if not propagated by cuttings, may be considered a biennial; young plants raised in heat one year, and safely kept over the winter in a cool stove or a warm greenhouse, and potted in spring, will bloom beautifully in summer.

STOVE ANNUALS.

- L. acuta'ngulus* (acute-angled). 6. Yellow. July. Peru. 1820. Biennial.
- *alatus* (winged). 1½. White. July. Mexico. 1824.
- *grandiflorus* (large-flowered). 3. Yellow. June. Trinidad. 1818. Biennial.
- *Kunthii* (Kunth's). Green. May. S. Amer.
- *Russelia'nus* (Duke of Bedford's). 3. Purple. July. Mexico. 1835. Biennial.

STOVE EVERGREENS.

- L. glaucifolius* (milky-green-leaved). 2. Purple.
- *latifolius* (broad-leaved). 4. Yellow. August. Jamaica. 1821.
- *splendens* (shining). Red. June. New Grenada. 1846. Trailer.
- *umbellatus* (umbelled). 6. Yellow. July. Jamaica. 1822.

LITHOSPERMUM. Gromwell. (From *lithos*, a stone, and *sperma*, a seed. Nat. ord., *Borageworts* [*Boraginaceæ*]. Linn., 5-Pentandria 1-Monogynia. Allied to *Echium*.)

Annuals and biennials, by seed in common garden-soil, in April; perennials, by division, seed, and cuttings of young shoots; shrubby species, by cuttings, and by seeds; indeed, all of them will soon multiply themselves by seeds in suitable places; *sca'brum* and *distichum* will require protection in winter, and a little heath-soil joined to the loam.

HARDY ANNUALS, &c.

- L. disper'mum* (two-seeded). ½. Blue. June. Siberia. 1799.
- *lineatum* (lined). 1. Purple. July. Greece. 1826. Biennial.
- *tenuiflorum* (slender-flowered). ½. Blue. May. Egypt. 1796.

HARDY EVERGREENS.

- L. graminifolium* (grass-leaved). 3½. Blue. May. Italy. 1825.
- *prostratum* (lying-flat). 1. Blue. June. France. 1825. Trailer.
- *rosmarinifolium* (rosemary-leaved). 1½. Blue. September. Italy. 1833.

HARDY HERBACEOUS.

- L. ceme'scens* (hoary). ¾. Orange. May. N. Amer. 1847.
- *distichum* (two-rowed). 1½. Yellow, white. May. Cuba. 1806. Half-hardy.
- *fruticosum* (shrubby). 2. Blue. May. South Europe. 1683.
- *officinale* (shop). 2. Yellow. June. Britain.
- *latifolium* (broad-leaved). 2. Yellow. June. N. Amer. 1825.
- *orientale* (eastern). 2. Yellow. June. Levant. 1713.
- *purpureo-ceruleum* (purplish-blue). 1. Purple. May. England.

L. sca'brum (rough). 1½. White. September. Cape of Good Hope. 1822. Half-hardy.

- *strigosum* (bristly). 1. Blue. July. Tauria. 1820.
- *tinctosum* (dyer's). 1½. Blue. July. South Europe. 1596.
- *villosum* (shaggy). 1. Blue. July. South France. 1817.

LITRE'A. (From *lythron*, black blood; referring to the juice staining black. Nat. ord., *Anacards* or *Terebinths* [*Anacardiaceæ*]. Linn., 5-Pentandria 3-Tri-gynia. Allied to *Rhus*.)

Greenhouse evergreen tree. See *Rhus* for cultivation.

L. caustica (caustic). 40. Pale yellow. Chili. 1832.

LITOBRO'CHIA. (A commemorative name. Nat. ord., *Ferns* [*Polypodiaceæ*]. Linn., 24-Cryptogamia 1-Filices.)

Stove Fern. See *FERNs*.

- L. aculeata* (prickly-stemmed). 10. Brown. August. W. Ind. 1793.
- *amplea* (large). Brown, pale yellow. May. W. Ind.
- *aurita* (eared). Brown, yellow. July. Isle of Luzon.
- *Davallioides* (Davallia-like). Yellow. May.
- *decurrens* (running-down). Brown, yellow. July. Brazil.
- *denticulata* (toothed). 2. Brown. July. Brazil. 1824.
- *grandifolia* (large-leaved). 2. Brown. August. W. Ind. 1793.
- *Hænkeana* (Hænke's). Brown, yellow. June.
- *hirsuta* (hairy). 1. Brown. June. W. Ind. 1793.
- *intermedia* (intermediate). Brown, yellow. June. Isle of Luzon.
- *leptophylla* (slender-leaved). 2. Brown. July. Brazil. 1824.
- *macroptera* (large-winged). Brown, yellow. June. W. Ind.
- *pedata* (doubly-lobed). 1. Brown. June. Jamaica. 1793.
- *podophylla* (duck's-foot). Brown, yellow. June. W. Ind.
- *poli'ta* (polished). 6. Brown, yellow. May. Jamaica. 1841.
- *spinulosa* (spiny). Brown, pale yellow. W. Ind.
- *splendens* (shining). Brown, pale yellow. June. W. Ind.
- *vespertilionis* (bat-winged). 3. Brown. May. N. Holland. 1823.

LITTA'A. (Named after the Duke of Litta, near Milan. Nat. ord., *Amaryllids* [*Amaryllidaceæ*]. Linn., 6-Hexandria 1-Monogynia. Allied to *Agave*.)

Greenhouse evergreen. Suckers; sandy loam and leaf-mould, and a little dried cow-dung. Winter temp., 40° to 45°.

L. geminiflora (twin-flowered). 15. Green. July. America. 1810.

LITTONIA. (In honour of Dr. S. Lit-ton, professor of botany, Dublin. Nat. ord., *Lilyworts* [*Liliaceæ*]. Linn., 6-Hexandria 1-Monogynia.)

A stove bulb. Offsets. Light garden-soil.

L. modesta (unassuming). 2½. Orange. April. S. Africa. 1853.

LIVERY. Soil that is dug or moved about whilst wet is liable to set close together like mortar, and is said to be livery, or like liver.

LIVISTONIA. (Named after *P. Murray*, of Livingston, near Edinburgh. Nat. ord., *Palms* [Palmaceæ]. Linn., 6-*Hexandria* 3-*Trigynia*. Allied to *Corypha*.)

Greenhouse Palms, from New Holland. Seeds in a hotbed; rich, sandy loam. Summer temp., 60° to 80°; winter, 50° to 60°.

L. humilis (humble). 6. 1824.

— *inermis* (unarmed). 10. 1824.

LLOYDIA. (Named after *Mr. Lloyd*, an English botanist. Nat. ord., *Lilyworts* [Liliaceæ]. Linn., 6-*Hexandria* 1-*Monogynia*. Allied to *Calochortus*.)

Hardy biennial. Division of the bulbs in spring; a dry, sandy loam, in front of a border of flowers.

L. striata (streaked). White-striped. May. Siberia. 1789.

LOAM is a very indefinite term, almost every cultivator of the soil associating it with a different explanation. In some parts of England *clay* is so called, and in others it is employed to designate *brick-earth*! As usually employed, it really is only synonymous with the word soil; for it has to be qualified by the terms *turfy*, *sandy*, *clayey*, and *chalky*, just as *turf*, *sand*, *clay*, or *chalk* predominate. *Hazel loam* is a rich, friable soil, having a dark brown, or hazel colour, owing to the predominance of decaying vegetable matters.

In this work we use the term *loam* to describe a soil that is easily worked at any season, being sufficiently retentive, yet not too retentive, of water. *Maiden loam* is used often among gardeners to describe the fat earth forming the top spit of pasture-ground, and used by them for composts: that with a yellowish-brown colour is most preferred. *Sandy loams* are the easiest worked, and yield the earliest produce; *chalky loams*, if the chalk does not abound too much, are early and fertile; in fact, no soil will continue fertile without calcareous matter; and *clayey loams* are bad to work, either in wet or dry weather, being wet and sticky in the one case, and hard and cracking in the other. Fine late crops, however, are produced from such soils, especially when the surface is moved to prevent cracking in hot weather.

LOA'SA. (Meaning unknown; proba-

bly a commemorative name. Nat. ord., *Loasads* [Loasacæ]. Linn., 18-*Polyadelphia* 2-*Polyandria*.)

Curious flowers, that would be very interesting were it not for the poisonous, stinging property possessed by the leaves. The annoyance and danger combined have limited their culture. They will all fare the better by being raised in a gentle hotbed in April, though most of them will flower freely if sown in a warm place the end of that month; but in a cold autumn they would be cut down in their prime; light soil.

ANNUALS.

L. alba (white). 1. White. July. Chili. 1831.

— *grandiflora* (large-flowered). 2. Yellow. Peru. 1825.

— *hispida* (bristly). 2. Yellow. July. Lima. 1830.

— *nitida* (shining). 2. Yellow. July. Chili. 1822.

— *patula* (spreading). 1. Yellow. July. Chili. 1827.

— *Placei* (Place's). 4. Yellow. July. Chili. 1822.

— *volvuliflora* (twining). 1½. Yellow. June. Chili. 1824.

GREENHOUSE BIENNIALS.

L. lateritia (red). 20. Red. May. Tucuman. 1835.

— *Pentlandii* (Mr. Pentland's). 4. Orange. August. Peru. 1840.

GREENHOUSE EVERGREENS.

L. inca'na (hoary). 2½. White. October. Peru. 1820.

— *lu'cida* (bright-leaved). White. June.

LOAVING. See **HEADING**.

LOBELIA. (Named after *M. Lobel*, a botanist, physician to James I. Nat. ord., *Lobeliads* [Lobeliaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*.)

Seeds of hardy kinds in open border, in April; greenhouse annuals and biennials, by seed in hotbed, in April; herbaceous kinds, whether hardy or requiring protection, by dividing the roots or suckers in spring, after growth has commenced; shrubby kinds, by small cuttings of the young shoots; indeed, all of them may be so propagated; sandy loam, leaf-mould, and a little peat suit the tenderest kinds, and for the strong-growing, herbaceous sorts, such as *splen'dens* and *cardinalis*, it is scarcely possible to make the soil too rich by top-dressings of rotten dung; the soil itself should be light. The finest of the species must be kept in a cold pit or greenhouse during the winter; *lanceolatis* has been grown in peat and gravel, in a pot, plunged in a cistern or slowly-running stream.

HARDY ANNUALS.

L. a'niceps (two-edged). ¾. Blue. June. Cape of Good Hope. 1818.

— *campanulata* (bell-flowered). ¾. Blue. June. Cape of Good Hope. 1821.

— *Cliffordia'na* (Clifford's). 1½. Pink. July. N. Amer.

— *fenestralis* (windowed). ¾. Blue. July. Mexico. 1824.

— *serrulata* (saw-edged). ¾. Blue. June. Spain. 1820.

GREENHOUSE ANNUALS.

L. bi'color (two-coloured). ¾. Pale blue. July. Cape of Good Hope. 1795.

— *gracilis* (slender). 1. Dark blue. July. N. S. Wales. 1801.

- L. Laurentia* (Laurentian). $\frac{1}{2}$. Blue. July. Italy. 1778.
 — *simplex* (simple-stalked). $\frac{1}{2}$. Blue. July. Cape of Good Hope. 1794. Biennial.

GREENHOUSE HERBACEOUS.

- L. ala'ta* (winged-stalked). $1\frac{1}{2}$. Blue. June. N. Holland. 1804.
 — *argu'ta* (sharp-notched). 2. Blue. September. Chili. 1824.
 — *bellidifo'lia* (daisy-leaved). $\frac{1}{2}$. Blue. September. Cape of Good Hope. 1790.
 — *Bridge'sii* (Mr. Bridges?). 4. Pink. June. Chili. 1836.
 — *cæru'lea* (blue). $1\frac{1}{2}$. Blue. June. Cape of Good Hope. 1824.
 — *campanuloi'des* (campanula-like). $\frac{1}{2}$. White. June. China. 1820.
 — *cardinalis* (cardinal-flower). 3. Scarlet. July. Virginia. 1629.
 — *Cavanillesia'na* (Cavanilles?). 3. Red. June. Spain. 1825.
 — *coronopifo'lia* (coronopus-leaved). $\frac{3}{4}$. Blue. July. Cape of Good Hope. 1752.
 — *crena'ta* (scolloped-leaved). $\frac{1}{2}$. Blue. April. Cape of Good Hope. 1794.
 — *decu'mbens* (lying-down). $\frac{1}{2}$. Blue. October. Cape of Good Hope. 1820.
 — *denta'ta* (toothed). 1. Blue. June. N. Holland. 1824.
 — *discolor* (two-coloured). Blue. August. Swan River. 1818.
 — *er'i'nus* (erinus). $\frac{1}{2}$. Blue. July. Cape of Good Hope. 1752.
 — *compa'cta* (compact). $\frac{1}{2}$. Blue. June. Gardens.
 — *compa'cta al'ba* (white-compact). $\frac{1}{2}$. White. June. Gardens. 1847.
 — *grandifo'ra* (large-flowered). $\frac{1}{2}$. Blue. June. Gardens. 1841.
 — *lu'cida* (shining). Blue, white. June. Gardens.
 — *fulgens* (shining). 3. Scarlet. July. Mexico. 1809.
 — *Marryattæ* (Mrs. Marryatt's). 3. Crimson, purple. May. 1847.
 — *multifo'ra* (many-flowered). 4. Scarlet. May. 1847.
 — *pyramida'lis* (pyramidal). 4. Scarlet. May. 1847.
 — *heterophy'lia* (various-leaved). 2. Blue. September. Van Diemen's Land. 1837.
 — *ma'jor* (larger). 3. Blue. June. Swan River. 1840.
 — *hirsu'ta* (hairy). $\frac{1}{2}$. Blue. July. Cape of Good Hope. 1759.
 — *igne'a* (fiery). 4. Flame. June. Chili. 1838.
 — *ilicifo'lia* (holly-leaved). $\frac{1}{2}$. Pink. June. Cape of Good Hope. 1815.
 — *Kraussii* (Krauss's). $1\frac{1}{2}$. Blue. January. Dominica. 1828.
 — *me'nima* (least). 1-12th. White. July. Cape of Good Hope. 1800.
 — *mo'llis* (soft). Purple. June. Dominica. 1828.
 — *mucrona'ta* (spine-pointed-leaved). 3. Bright crimson. August. Chili. 1831.
 — *multifo'ra* (many-flowered). Purple. June. Swan River. 1838.
 — *peduncula'ta* (long-flower-stalked). 1. Blue. October. N. S. Wales. 1819.
 — *persicifo'lia* (peach-leaved). 1. Purple. June. W. Ind. 1824. Stove.
 — *pube'scens* (downy). $\frac{1}{2}$. Blue. September. Cape of Good Hope. 1780.
 — *purpura'scens* (purplish). 1. Blue. July. N. S. Wales. 1809.

- L. pyramida'lis* (pyramidal). 4. Blue. September. Nepal. 1822.
 — *rugulo'sa* (wrinkled). 2. Blue. June. New Zealand. 1826.
 — *senecioi'des* (senecio-like). 1. Blue. July. N. Holland. 1824.
 — *seta'cea* (short-bristled). $\frac{1}{2}$. Blue. June. Cape of Good Hope. 1816.
 — *Si'msii* (Sims's). 1. Blue. October. Cape of Good Hope. 1819.
 — *splendens* (shining). 3. Scarlet. June. Mexico. 1814.
 — *Texensis* (Texian). Scarlet. June. Mexico. 1845.
 — *thapsoi'dea* (mullein-like). 6. Rosy-purple. Organ Mountains. 1843.
 — *Thunbe'rgii* (Thunberg's). 1. Blue. August. Cape of Good Hope. 1822.
 — *trique'tra* (triangular). 1. Blue. July. Cape of Good Hope. 1774.
 — *umbella'ta* (umbelled). 1. Blue. June. 1818.
 — *Zeyla'nica* (Ceylon). 1. Blue. June. E. Ind. 1821.

GREENHOUSE EVERGREENS.

- L. assurgens* (rising). 3. Scarlet. August. W. Ind. 1787.
 — *Begoniafo'lia* (Begonia-leaved). $\frac{1}{2}$. Pale blue. June. Nepal. 1827.
 — *decu'rrens* (running-down). 3. Purple. July. Chili. 1826.
 — *gigante'a* (gigantic). 14. Orange. August. S. Amer. 1828.
 — *heteroma'lla* (diversely-haired). Blue. 1829.
 — *linea'ris* (narrow-leaved). $\frac{1}{2}$. Blue. Cape of Good Hope. 1791.
 — *macula'ta* (spotted). $\frac{1}{2}$. White. May. New Zealand. 1829.
 — *odora'ta* (fragrant). $\frac{1}{2}$. White. September. Buenos Ayres. 1832.
 — *pinifo'lia* (pine-leaved). $1\frac{1}{2}$. Blue. June. Cape of Good Hope. 1752.
 — *purpu'rea* (purple). 1. Purple. June. Valparaiso. 1825. Stove.
 — *robusta* (robust). 3. Blue. August. Hayti. 1830. Stove.

HARDY HERBACEOUS.

- L. amœ'na* (pleasing). 3. Blue. July. N. Amer. 1812.
 — *Claytonia'na* (Clayton's). 2. Blue. June. N. Amer. 1824.
 — *cæle'stris* (heavenly). 2. Blue. July. N. Amer. 1831.
 — *colora'ta* (coloured-leaved). 5. Orange. August. N. Amer. 1832.
 — *cri'spa* (curled). 2. Blue. June. N. Amer. 1825.
 — *glandulo'sa* (glanded). 24. Blue. September. New Carolina. 1840.
 — *Kal'mii* (Kalm's). 1. Blue. July. Carolina. 1820.
 — *lacu'stris* (lake). Pale blue. July. Britain.
 — *Nutta'llii* (Nuttall's). 1. Blue. July. N. Amer. 1824.
 — *paludo'sa* (marsh). Pale blue. July. N. Amer.
 — *polyphy'llu* (many-leaved). 44. Purple. August. Valparaiso. 1829.
 — *pube'rula* (mossy). 1. Pale blue. June. N. Amer. 1800.
 — *glabe'lla* (smoothish). $\frac{1}{2}$. Purple. blue. July. Louisiana. 1839.
 — *ramo'sa* (branching). 2. Dark blue. August. Swan River. 1838.
 — *syphy'llica* (syphilitic). 2. Light blue. September. Virginia. 1665.
 — *alba* (white). 3. White. August.
 — *tene'lla* (delicate). $\frac{1}{2}$. Purple, violet. May. Sicily. 1821.

LOBLOLLY-BAY. *Gordonia lasianthus*.

LOCUST-TREE. *Hymenaea*.

LODDIGE'SIA. (Named after Conrad Loddige, the founder of the well-known nursery at Hackney. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 16-Monadelphus 6-Decandria. Allied to Hypoclyptus.)

Greenhouse evergreen. Cuttings of the points of the shoots in April, in sandy soil, under a bell-glass; sandy peat and a little loam. Winter temp., 40° to 48°; a cool place in summer.

L. oxalidifolia (oxalis-leaved). 1½. Pale purple. June. Cape of Good Hope. 1802.

LODORCEA. (Named after Laodice, the daughter of Priam and Hecuba. Nat. ord., *Palms* [Palmaceæ]. Linn., 22-Diceia 12-Polyandria.)

Stove Palm. Seeds in a strong, moist heat; loam and peat. Summer temp., 60° to 90°, with much moisture in the atmosphere; winter, 58° to 60°.

L. Seychellarum (Seychelles). 50. Seychelles Islands.

LOGANIA. (Named after J. Logan, a distinguished botanist. Nat. ord., *Loganiads* [Loganiaceæ]. Linn., 5-Pentandria 1-Monogynia. Allied to Fagrea.)

Greenhouse evergreens, with white flowers, from New Holland. Stiff side-shoots, getting well ripened at the base, in sandy soil, under a bell-glass, in summer; sandy loam and fibry peat, kept more open still by pieces of charcoal. Winter temp., 38° to 45°. In summer the pots protected from strong sunshine.

L. floribunda (bundle-flowered). 2. April. 1797.

— *latifolia* (broad-leaved). 3. 1816.

— *revoluta* (rolled-back-leaved). 2. 1826.

LCESYLIA. See HOITZIA.

LOGWOOD. *Hæmatoxylon*.

LOMAGRAMMA. (From *loma*, an edge, and *gramma*, writing; referring to the appearance and position of the spore or seed-cases on the leaves. Nat. ord., *Ferns* [Polypodiaceæ]. Linn., 24-Cryptogamia 1-Filices.)

Stove Fern. See FERNS.

L. pteroides (brake-like). Brown. May. Isle of Luzon. 1840.

LOMARIA. (From *loma*, an edge; referring to the position of the spore or seed-cases on the leaves. Nat. ord., *Ferns* [Polypodiaceæ]. Linn., 24-Cryptogamia 1-Filices.)

All brown-spored. See FERNS.

HARDY.

L. spicant (spiked). 1. June. Britain.

GREENHOUSE.

L. alpina (alpine). Falkland Isles. 1843.

— *antarctica* (antarctic). Magellan. 1813.

— *attenuata* (thin). 1. August. 1838.

— *falcata* (sickle-shaped). 2. July. Van Diemen's Land. 1823.

L. Fraseri (Fraser's). New Zealand. 1843.

— *lanceolata* (spear-head-shaped). ½. September. N. Holland. 1830.

— *Magellanica* (Magellan). Falkland Isles. 1843.

— *nuda* (naked). 2. June. Van Diemen's Land. 1822.

— *Patersoni* (Paterson's). ½. September. N. Holland. 1830.

— *procera* (tall). 3. July. New Zealand. 1822.

STOVE.

L. Boryana (Bory's).

— *Chilensis* (Chilian). Chili.

— *discolor* (two-coloured). Brazil.

— *fluvialis* (floating).

— *Gilliesii* (Gillies'). Brazil. 1841.

— *longifolia* (long-leaved). 2. June. W. Ind. 1810.

— *onocleoides* (onoclea-like). July. Jamaica. 1824.

— *sorbifolia* (sorb-leaved). August. W. Ind. 1793.

— *vestita* (clothed). Isle of Luzon.

LOMA'TIA. (From *loma*, an edge; referring to the winged edge of the seeds. Nat. ord., *Proteads* [Proteaceæ]. Linn., 4-Tetrandria 1-Monogynia. Allied to Telopea.)

Greenhouse evergreens. Cuttings of firm young shoots early in spring, or late in summer, in sand, under a bell-glass; sandy peat, with a little loam. Winter temp., 38° to 40°.

L. dentata (toothed). 3. Chili. 1824.

— *ilicifolia* (holly-leaved). 3. July. N. Holland. 1824.

— *silaifolia* (silaum-leaved). 2. Orange. July. N. S. Wales. 1792.

— *tinctoria* (dyer's). 2. N. Holland. 1822.

LONCHITIS. (From *lonche*, a lance; the shape of the leaves, or fronds. Nat. ord., *Ferns* [Polypodiaceæ]. Linn., 24-Cryptogamia 1-Filices.)

Stove Ferns, with brown spores, from the Tropics. Some species are now joined to Litobrockia. See FERNS.

L. aurita (eared). July. S. America.

— *glabra* (smooth). July. S. Africa.

— *pubescent* (downy). July. Mauritius.

LONCHOCARPUS. (From *lonche*, a lance, and *carpos*, a fruit; shape of seed-pod. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 17-Diadelphia 4-Decandria. Allied to Dalbergia.)

Stove evergreen trees, with purple flowers, except where specified otherwise. Cuttings of half-ripened shoots in sand, under a bell-glass, and in a sweet bottom-heat, in May; turfy loam and fibry peat, with sand and charcoal to keep it open, though pressed firmly together. Summer temp., 60° to 85°; winter, 55° to 60°.

L. Domingensis (St. Domingo). 20. Red. St. Domingo. 1820.

— *latifolius* (broad-leaved). 20. W. Ind. 1808.

— *macrophyllus* (large-leaved). 40. S. Amer. 1818.

— *pubescent* (downy). 25. Purple. Caraccas. 1824.

— *pyrularius* (box). 20. Cuba. 1820.

— *roseus* (rosy). 16. Red. S. Amer. 1700.

— *sepium* (hedge). 30. S. Amer. 1820.

— *sericeus* (silky). 20. W. Ind. 1826.

— *violaceus* (violet). 12. Carthage. 1759.

LONDON PRIDE. *Saxifraga umbrosa*.
LONICERA. (Named after Adam Lonicer, a German botanist. Nat. ord., *Caprifoliaceae*). Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Caprifolium*.)

Hardy deciduous shrubs. By cuttings and layers in the autumn; with all the succulent, pithy-stemmed kinds, the latter mode is the best, as cuttings are apt to rot; when planted they should have a shady, sheltered situation; good, loamy soil.

L. alpi'gena (alpine). 6. Yellow. April. South Europe. 1596.

— *Sibi'rica* (Siberian). 5. Yellow. April. Siberia. 1810.

— *angustifo'lia* (narrow-leaved). 5. Pale yellow. April. North India. 1847.

— *caerulea* (blue-berried). 4. Yellow. May. Switzerland. 1629.

— *Canade'nsis* (Canadian). Yellow. May. Canada. 1812.

— *cane'scens* (hoary). 10. April. Europe.

— *ciliata* (hair-fringed). 4. White, red. April. N. Amer. 1824.

— *alba* (white-berried). 4. White, red. April. N. Amer. 1824.

— *discolor* (two-coloured). 4. Yellow, crimson. June. E. Ind. 1844.

— *diversifo'lia* (various-leaved). 4. Yellow. May. Himalaya. 1843.

— *flexuosa* (zigzag). 15. Orange. July. Japan. 1806.

— *Ibe'rica* (Iberian). 6. Orange. April. Iberia. 1824.

— *involuta'la* (involuered). 3. Yellow. April. Hudson's Bay. 1824.

— *Ledebouri* (Ledebour's). 3. Yellow, red. June. California. 1833.

— *microphy'lia* (small-leaved). 4. Siberia. 1818.

— *nigra* (black). 4. Pale yellow. April. Switzerland. 1597.

— *campanifo'ra* (bell-flowered). 4. Yellow. May. N. Amer.

— *oblongifo'lia* (oblong-leaved). 3. White. April. N. Amer. 1823.

— *orientalis* (eastern). 16. Yellow. June. Iberia. 1825.

— *puniceus* (crimson). Crimson. May. N. Amer. 1822.

— *Pyrena'ica* (Pyrenean). 4. White. Pyrenees. 1739.

— *Tata'rica* (Tartarian). 10. Pink. April. Russia. 1752.

— *albifo'ra* (white-flowered). 10. White. May. Pyrenees. 1739.

— *latifo'lia* (broad-leaved). 10. Pink. April.

— *lu'cea* (yellow-flowered). 10. Yellow. April.

— *rubriflo'ra* (red-flowered). 10. Red. April. Russia. 1752.

— *villo'sa* (shaggy). 4. Yellow. April. Canada. 1820.

— *xylo'steum* (fly). 8. Yellow. June. England.

— *leucocarpum* (white-berried). 8. Yellow. June. Britain.

— *melanocarpum* (black-berried). 8. Yellow. June. Britain.

— *xanthocarpum* (yellow-berried). 8. Yellow. June. Britain.

LOOKING-GLASS PLANT. *Heritie'ra*.

LOOSESTIFE. *Lysima'chia*.

LOPE'ZIA. (Named after J. Lopez, a Spanish botanist. Nat. ord., *Onagrad*

[*Onagraceae*]. Linn., 1-*Monandria* 1-*Monogynia*. Allied to *Circæa*.)

Annuals, from Mexico, all of which thrive the better if sown on a light hotbed in the middle of March, and are transplanted in the middle of May; light soil.

L. corda'ta (heart-leaved). 1½. Purple. August. 1821.

— *corona'ta* (coroneted). 1½. Red. August. 1895.

— *hirsu'ta* (hairy). 1½. Red. August. 1796.

— *linea'ta* (streaked-leaved). 3. Rose. February. 1839.

— *pu'mila* (dwarf). ½. Red. August. 1824.

— *racemo'sa* (racemed). 1½. Red. August. 1792.

LOPHANTHUS. (From *lophos*, a crest, and *anthos*, a flower; referring to the middle lobe of the flower. Nat. ord., *Labiates*, or *Lipworts* [*Lamiaceae*]. Linn., 14-*Didynamia* 1-*Gymnospermia*. Allied to *Mentha*.)

Hardy herbaceous perennials, from North America. Seeds sown in April; cuttings of the young shoots at the same time, in a shady place, in sandy soil, under a hand-light; division of the plant in spring; good garden-soil.

L. anisa'tus (anise-scented). 3. Blue. July. 1825.

— *Nepeto'ides* (Nepeta-like). 5. Yellow, white. July. 1692.

— *scrophularioi'des* (figwort-like). 5. Pink. July. 1800.

— *urticafo'lius* (nettle-leaved). 2. Blue. July. 1826.

LOPH'OLA. (A diminutive of *lophos*, a crest; referring to the crested sepals, or flower-leaves. Nat. ord., *Lilyworts* [*Liliaceae*]. Linn., 6-*Hexandria* 1-*Monogynia*. Allied to *Wachendorfia*.)

Hardy herbaceous perennial. Division of the roots in autumn or spring; peaty soil, in a damp, shady situation.

L. au'rea (golden-flowered). 1½. Yellow. June. N. Amer. 1811.

LOPH'RA. (From *lophos*, a crest; referring to two of the sepals finally expanding into crested wings. Nat. ord., *Lophirads* [*Lophiraceae*]. Linn., 12-*Icosandria* 1-*Monogynia*.)

This is the Scrubby Oak of Sierra Leone, a handsome tree, with panicked yellow flowers. Endlicher founded the order on it because it is "allied to nothing yet known." A tropical evergreen shrub; cuttings of firm young wood in sand, under a bell-glass, and in a sweet bottom-heat; sandy loam and fibry peat. Summer temp., 60° to 90°; winter, 50° to 60°.

L. Africa'na (African). 10. Yellow. June. Sierra Leone. 1822.

LOPHOSPERMUM. (From *lophas*, a crest, and *sperma*, a seed; the seeds are furnished with a crested wing. Nat. ord., *Figworts* [*Scrophulariaceae*]. Linn., 14-*Didynamia* 1-*Gymnospermia*.)

Beautiful evergreen climbers, requiring the greenhouse or cold frame in winter, growing against poles, fences, &c., during summer; propagated by preserving the fleshy roots in dry

earth in winter; by seed sown in a hotbed, in March and April, and cuttings of young shoots taken in August, inserted in sandy soil, and placed in a cool frame, or under a hand-light, and shaded; rich, sandy loam.

L. atro-sanguineum (dark-bloody). 10. Dark purple. June. Mexico. 1833.

— *crube'scens* (blushing). 10. Rosy. August. Jalapa. 1830.

— *sca'ndens* (climbing). 10. Purple, violet. Mexico. 1834.

LOQUAT, or JAPAN QUINCE. (*Eriobotrya Japo'nica*.) It ripens its fruit with a moderate amount of heat in this country. Some varieties are said to succeed on the open wall; but it must be in such mild localities as the warmer parts of Devon or Cornwall. The temperature of the peach-house—or what is sometimes called the intermediate-house—will, however, suit it; and as to wintering, it requires little more than the exclusion of frost. As the growth of this, for dessert purposes, has never been, as far as we are aware, systemized in this country, we can only offer a few general hints as to its culture. It has been affirmed that it succeeds best grafted on the quince, and it is very probable; for it belongs to the same natural order, *Appleworts*, in addition to which, individuals from the genera *Pyrus*, *Amelanchier*, *Mespilus*, and even the *Photinia serrula'ta*, being itself an evergreen, present most likely stocks.

Grafting is recommended, in order to check its excessively robust character; for in its natural growth it would be too coarse for ordinary hothouses. Grafting, therefore, or any of the expedients resorted to in pear culture, may be had recourse to. It may be readily propagated from seed, and doubtless by cuttings, and will grow in any ordinary soil. We would, however, use no manurial matters, but simply peat and strong loam, the latter predominating.

LORD ANSON'S PEA. *La'thyrus Magel'anicus*.

LORE'YA. (Named after *M. Lorey*, a botanist, author of the Flora of Burgundy. Nat. ord., *Melastomads* [Melastomaceæ]. Linn., 10-*Decandria* 1-*Monogynia*. Allied to *Miconia*.)

Stove evergreen tree. Cuttings of young shoots in April, in sand, over sandy peat, and that extra well drained; sandy peat, a little fibry loam, and pieces of charcoal and broken freestone. Summer temp., 60° to 85°; winter, 50° to 55°.

L. arbore'scens (tree-like). 30. White. July. Guiana. 1822.

LOTE. *Zi'zyphus lo'tus*.

Lo'tus. Bird's-foot Trefoil. (From the

lotus of Theophrastus, which is *Zi'zyphus lo'tus*. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 17-*Diadelphia* 4-*Decandria*. Allied to *Trifolium*.)

Annuals, by seed at the beginning of April; a very few require the assistance of a gentle hotbed, and transplanting afterwards; herbaceous and semi-shrubby, low-trailing plants, by division, and cuttings in summer under a hand-light, in a shady place. These are very useful for banks and rock-works. Greenhouse and frame kinds, by cuttings of young shoots in sandy soil, under a hand-light or frame; light, sandy soil for all.

STOVE ANNUAL.

L. Indicus (Indian). 1. July. E. Ind. 1793.

GREENHOUSE HERBACEOUS PERENNIALS.

L. argenteus (silvery). $\frac{1}{2}$. June. 1827.

— *angustifolius* (narrow-leaved). $\frac{1}{2}$. July. 1827.

— *australis* (southern). Pink. July. N. Holland. 1800.

— *glau'cus* (milky-green). 1. June. Madeira. 1777.

— *sessilifolius* (stalkless-leaved). 1. July. Tenerife. 1820.

GREENHOUSE EVERGREENS.

L. anthyll'oïdes (anthyllis-like). $\frac{3}{4}$. Dark purple. June. Cape of Good Hope. 1812.

— *atro-purpu'reus* (dark purple). 1. Dark brown. Tenerife. 1820.

— *Cre'ticus* (Cretan). $\frac{1}{2}$. June. Levant. 1680.

— *Gebel'ia* (mountain). 1. May. Aleppo. 1816.

— *Jacobae'us* (St. James's Island). 2. Dark brown. July. Cape de Verd Islands. 1714.

— *lu'teus* (yellow-flowered). 2. July.

— *spectabilis* (showy). 2. Tenerife.

HARDY ANNUALS.

L. angustissimus (narrowest-podded). 1. May. Britain.

— *Ara'bicus* (Arabian). $\frac{1}{2}$. Pink. July. Arabia. 1773.

— *arenarius* (sand). $\frac{3}{4}$. April. Tenerife. 1831.

— *ciliat'us* (hair-fringed). $\frac{1}{2}$. July. Sicily. 1812.

— *Coimbrice'nsis* (Coimbra). $\frac{1}{2}$. White, red. June. Portugal. 1800.

— *cytisoi'des* (cytisus-like). 1. June. South Europe. 1752.

— *decu'mbens* (lying-down). $\frac{1}{2}$. July. Europe. 1816.

— *Diosco'ridis* (Dioscorides?). 1. June. Nice. 1658.

— *edu'lis* (eatable). $\frac{1}{2}$. July. Italy. 1759.

— *glabe'rri'mus* (very smooth). $\frac{1}{2}$. White. July. South Europe. 1816.

— *gra'cilis* (slender). 1. July. Hungary. 1812.

— *odora'tus* (sweet-scented). $\frac{1}{2}$. June. Barbary. 1804.

— *peregrin'us* (spreading). $\frac{1}{2}$. July. South Europe. 1713.

— *pus'llus* (small). $\frac{1}{2}$. July. South Europe. 1816.

HARDY HERBACEOUS PERENNIALS.

L. corniculat'us (small-horned). $\frac{1}{2}$. June. Britain.

— *alpi'nus* (alpine). $\frac{1}{2}$. June. Switzerland. 1819.

— *flo're-ple'no* (double-flowered). $\frac{1}{2}$. July. Gardens.

— *crassifo'lius* (thick-leaved). $\frac{1}{2}$. August. South Europe. 1812.

— *depre'ssus* (depressed). July. Hungary. 1819.

— *flexuo'sus* (zigzag). $\frac{1}{2}$. July. Europe. 1816.

— *Forste'ri* (Forster's). $\frac{1}{2}$. July. Britain.

— *ma'jor* (greater). $\frac{1}{2}$. June. Britain.

— *villo'sus* (shaggy). $\frac{1}{2}$. June. Switzerland. 1817.

— *pala'stris* (marsh). $\frac{1}{2}$. June. Crete. 1821.

— *peduncula'tus* (long-flower-stalked). 1. July. Spain. 1814.

- L. Portosancta* nus (Porto Santo). July. Porto Santo. 1789. Evergreen shrub.
 — *suaueolens* (sweet-scented). $\frac{1}{2}$. July. South France. 1816.
 — *tenuifolius* (slender-leaved). July. Europe. 1837.
 — *tenuis* (slender). 1. July. Hungary. 1816.
 — *uliginosus* (bog). June. Europe. 1836.

LOUSE. See APHIS.

LOUSEWORT. *Pedicularis*.

LOVE-APPLE, OR TOMATO. *Lycopersicum esculentum*.

Varieties.—Of the *Red*—the Common Large, Small, Pear-shaped, Cherry-shaped. Of the *Yellow*—the Large Yellow, Small or Cherry Yellow.

Soil.—Rich, light, and on a dry subsoil. Sea-weed may be applied with advantage to the border on which it is grown, as may kelp, or common salt in small quantities. The situation must be sheltered.

Sowing.—Sow at the close of March or early in April in a hotbed or stove. The hotbed must be of a moderate durability, earthed about six inches deep. In a hot-house, sow in pots or boxes set on the flues, or round the edges of the pits.

In whatever situation, sow thin, and not buried more than a quarter of an inch. The plants, when two or three inches high, must be thinned to three inches apart, and those removed pricked at the same distances, in a similar bed to that from which they were removed; shade and water freely in every stage of their growth; for if, from the want of this, a due exposure to the light, or any other cause, they become weak, they seldom are productive. Plant out in the open air early in June; prepare them for this, until at length they can endure the temperature of the greenhouse, where they may be kept until finally moved. But, before that time arrives, another thinning will be requisite; those in the hotbed to six inches apart, and those in the stove, each plant separate into tolerable-sized pots. They are to be finally planted five feet apart beneath a south paling or wall, to which their branches must be trained; for if allowed to trail on the ground the fruit scarcely ever ripens, and never is in perfection. Water and shade during midday must be afforded until they are established; and if the nights are cold during the first week or two, the shelter of a hand-glass, or even of a garden-pot, is advantageous.

The training may commence as soon as the branches are a foot long, and con-

tinued throughout their growth. In case of a want of space of wall or paling, they may be trained with stakes as espaliers. Throughout the summer clear away all lateral shoots, as well as thin the leaves, so as to expose the fruit to the full influence of the sun.

The berries begin to ripen about the middle of August, and continue to do so until October, or the arrival of the first frosts, which always destroy the plants.

To obtain Seed.—Some of the forwardest berries must be left until perfectly ripe. It must be separated from the pulp by washing, as directed for the Cucumber.

LOVE-LIES-BLEEDING. *Amaranthus caudatus*.

LOVE-TREE. *Cercis siliqua* strum.

LOWE'A. (Named after Rev. Mr. Lowe, travelling Bachelor of the University of Cambridge. Nat. ord., *Roseworts* [*Rosaceæ*]. Linn., 12-*Icosandria* 3-*Trigynia*. Allied to the Rose.)

Half-hardy deciduous plant, very shy and difficult to manage; a little protection in severe winters; seeds, and cuttings of the half-ripened wood; fibry peat, and open, sandy loam.

L. berberifolia (berberry-leaved). 1 $\frac{1}{2}$. Yellow, purple. June. Persia. 1790.

LOXOGRAMMA. (From *loxos*, slanting, and *gramma*, writing; referring to the spore or seed-cases. Nat. ord., *Ferns* [*Polypodiaceæ*]. Linn., 24-*Cryptogamia* 1-*Filices*.)

Stove Fern. See FERNS.

L. lanceolata (spear-head-leaved). Yellow. May. E. Ind.

LOZOTENIA ROSARIA is a small moth, of which the caterpillar feeds upon the leaves of the rose-tree. Mr. Curtis says, that "the eggs are laid in the summer or autumn, and hatch with the opening leaves; and the little caterpillar begins at once to form a residence by drawing two or more leaflets together, on which it feeds. This operation soon points out where the caterpillar is; and the best method which we know of getting rid of it is hand-picking, which should be practised as soon as the operation of the caterpillar becomes visible."

LUBINIA. (Named after M. St. Lubin, a French botanist. Nat. ord., *Primeworts* [*Primulaceæ*]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Trientalis*.)

Half-hardy herbaceous perennial. Cuttings under a hand-light, in May, and seeds sown in a slight hotbed; loam and peat, with sand to keep it open; requires the protection of a cold pit in winter.

L. atro-purpurea (dark purple). 2. Purple. Cape of Good Hope. 1820.

LUCU'RIA. (From *luculi swa*, the native name. Nat. ord., *Cinchonads* [*Cinchonaceæ*]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Hymenodictyon*.)

Greenhouse evergreens, from Nepaul. Cuttings of the young shoots getting a little firm, about Midsummer, in sand, over sandy peat, well-drained, and covered with a bell-glass, set in a close pit or frame, and in a fortnight supplied with a little bottom-heat; peat and loam, both fibry, with sand and pieces of charcoal to keep it open. As soon as established as a little plant, which it will be by the following spring, to be transferred at once to a good large pot; a conservatory-bed, however, is the place where it flourishes and shows off to the best advantage, blooming in the autumn, winter, and spring months. It should also be tried against a conservative wall.

L. gratissima (most-welcome). 9. Red. 1823.
— *Pinciana* (Pince's). 5. White. 1843.

LUCU'MA. (The Peruvian name. Nat. ord., *Sapotads* [*Sapotaceæ*]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Sapota*.)

Stove evergreen trees, with white flowers. Cuttings of the ripe shoots in sand, under a bell-glass, and in heat; rich, fibry, sandy loam. Summer temp., 60° to 85°; winter, 50° to 55°.

L. Bonplandia (Bonpland's). 40. Cuba. 1822.
— *mummo'sa* (nippled). 50. S. Amer. 1739.
— *olova'ta* (reversed-egg-leaved). 40. Peru. 1822.
— *salicifolia* (willow-leaved). 40. Mexico. 1823.

LUDIA. (From *ludo*, to sport; referring to the various forms of leaf of *L. heterophylla*. Nat. ord., *Bixads* [*Bixaceæ*]. Linn., 13-*Polyandria* 1-*Monogynia*. Allied to *Prockia*.)

Stove evergreen shrubs, with yellow flowers, from Mauritius. Cuttings of half-ripened shoots in sand, under a bell-glass, in bottom-heat; fibry loam, with a little peat, and dried cow-dung. Summer temp., 60° to 85°; winter, 50° to 55°.

L. heterophylla (various-leaved). 4. July. 1823.
— *sessiliflora* (stalkless-flowered). 4. July. 1820.

LUHE'A. (Named after *Luhe*, a German botanist. Nat. ord., *Lindenblooms* [*Tiliaceæ*]. Linn., 18-*Polyadelphia* 2-*Polyandria*. Allied to *Sparmannia*.)

Stove evergreens. Cuttings of half-ripened shoots, two inches in length, in sand, under a bell-glass, and plunged in bottom-heat; fibry peat and sandy loam. Summer temp., 60° to 80°; winter, 48° to 55°.

L. Caraccasana (Caraccasian). *Caraceæ*. 1847. Shrub.
— *paniculata* (panicked). 10. Rosy. April. Brazil. 1828. Climber.

LUT'SIA. (Name not explained. Nat. ord., *Orchids* [*Orchidaceæ*]. Linn., 20-*Gynandria* 1-*Monandria*. Allied to *Vanda*.)

Stove orchid. Detaching the side-shoots; a block of wood covered with moss, or elevated above a pot, with sphagnum, peat, crocks, &c. Temperature, 60° to 90°, when growing in sum-

mer, with a moist atmosphere; 50° to 60° in winter, and dry; 60° to 90° in spring, and rather dry, to start the flower-buds, kept cooler afterwards, and excited again when the flowering is over.

L. alpina (alpine). Green, purple. April. Sylhet. 1837.

LUMNI'TZERA. (Named after *Lumnitzer*, a botanical author. Nat. ord., *Myrobalsans* [*Combretaceæ*]. Linn., 14-*Didynamia* 2-*Gymnospermia*. Allied to *Poivrea*.)

Stove annual and herbaceous plants. One of the latter is well-worth cultivating; seed, division of the plant, and by cuttings of the young shoots in spring; requires a warm greenhouse or a cool stove; sandy loam.

L. tenuiflora (slender-flowered). 1. Pale purple. July. E. Ind. 1703.

LUNA'RIA. Moonwort, or Honesty. (From *tuna*, the moon; referring to the shape of the seed-vessels. Nat. ord., *Crucifers* [*Brassicaceæ*]. Linn., 15-*Tetradynamia*. Allied to *Alyssum*.)

Hardy plants, natives of Germany, and flowering in May; seeds and divisions in spring. Common garden-soil.

L. biennis (biennial). 4. Light purple. 1570. Biennial.

— *albiflora* (white-flowered). 3. White. 1570.
— *reddiva* (revived). 3. Light purple. 1596. Herbaceous perennial.

LUNGWORT. *Pulmonaria*.

LUPINUS. Lupine. (From *lupus*, a wolf; devastates land as the wolf does the fold; literally, destroyer. Nat. ord., *Leguminous Plants* [*Fabaceæ*]. Linn., 16-*Monadelphia* 6-*Decandria*.)

They are generally arranged into annuals, perennials, and frame evergreen shrubs; but they all produce seed so freely, that it is easiest to propagate them by that means, only the evergreens, instead of being sown in the open ground, should have the assistance of a gentle hotbed to rear them before planting them out. If such kinds as *mutabilis* and *Cruikshankii* are sown in August, and kept in pots all the winter in a pit, they make splendid specimens on a lawn the following summer.

HALF-HARDY EVERGREENS.

L. albibifrons (white-countenanced. *Herbage hoary*). 3. Blue. September. California. 1833.

— *arborescens* (tree). 6. Yellow. July. 1793.

— *arbusculus* (shrub). 14. Pale purple. July. California. 1826. Herbaceous.

— *arvensis* (field). 14. Lilac. April. Peru. 1843. Biennial.

— *dimaculatus* (twin-spotted). Blue. September. Texas. 1835. Herbaceous.

— *canaliculatus* (channelled). 4. Blue. July. Buenos Ayres. 1829.

— *Cruikshankii* (Cruikshank's). 5. Variegated. July. Peru. 1829.

— *incanus* (hoary-herbage). Pale lilac. July. Buenos Ayres. 1830.

— *Mexicanus* (Mexican). 2. Blue. February. Mexico. 1819. Biennial.

— *multiflorus* (many-flowered). 4. Blue. July. Monte Video. 1810.

— *mutabilis* (changeable). 5. Blue, yellow. July. Bogota. 1819.

- L. pulchellus* (pretty). 3. Blue, purple. July. Mexico. 1828.
 — *tomentosus* (thick-downed). 6. Pink, white. July. Peru. 1825.
 — *versicolor* (party-coloured). 2. Pink, blue. July. Mexico. 1825.

HARDY ANNUALS.

- L. affinis* (related). 2. Deep blue. June. California. 1848.
 — *albus* (white). 3. White. July. Levant. 1596.
 — *angustifolius* (narrow-leaved). 2. Blue. July. Spain. 1686.
 — *Barkeri* (Mr. Barker's). 3. Blue, pink. July. Mexico. 1839.
 — *bicolor* (two-coloured). 2. Pale blue. July. N. Amer. 1826.
 — *bracteolatus* (bracted). 1½. Blue. July. Monte Video. 1820.
 — *densiflorus* (dense-flowered). 2. White, pink. July. California. 1833.
 — *Ehrenbergii* (Ehrenberg's). 3. Blue. June. Mexico. 1843. Biennial.
 — *elegans* (elegant). 2. Violet, rose. June. Mexico. 1831.
 — *exaltatus* (tall). 1832.
 — *Hartwegii* (Mr. Hartweg's). 3. Blue, pink. July. Mexico. 1838.
 — *hirsutus* (hairy). 2. Blue. July. South Europe. 1629.
 — *hirsutissimus* (most-hairy). 2. Red. July. California. 1838.
 — *leptocarpus* (slender-fruited). 3. Purple. June. Mexico. 1839. Biennial.
 — *leptophyllus* (slender-leaved). 2. Blue, lilac. July. California. 1833.
 — *linifolius* (flax-leaved). 2. Blue. July. Monte Video. 1799.
 — *luteus* (yellow). 2. Yellow. July. Sicily. 1596.
 — *micranthus* (small-flowered). 2. Purple, blue. May. N. Amer. 1826.
 — *microcarpus* (small-podded). 1½. Blue. April. Chili. 1821.
 — *nanus* (dwarf). 1. Blue. July. California. 1833.
 — *pilosus* (shaggy). 3. Flesh. July. South Europe. 1710.
 — *pubescens* (downy). 2. Violet, blue. June. Quito. 1844. Biennial.
 — *pustillus* (little). 2. Pale blue. July. N. Amer. 1817.
 — *ramosissimus* (much-branched). 3. Crimson, blue. Chimborazo.
 — *Texensis* (Texan). 1½. Blue. June. Santa Fe.
 — *Terminis* (Terminis). 3. White. June. Egypt. 1802.
 — *varius* (variable). 3. Blue, white. July. South Europe. 1596.

HARDY PERENNIALS.

- L. argenteus* (silvery). White. June. N. Amer. 1826.
 — *aridus* (dry). 1. Purple, blue. August. N. Amer. 1827.
 — *grandifolius* (large-leaved). 4. Purple. July. N. Amer.
 — *laxiflorus* (loose-flowered). 1. Blue, pink. Columbia. 1826.
 — *latifolius* (broad-leaved). 4½. Blue. July. California. 1834.
 — *lepidus* (pretty). 2. Blue, pink. August. Columbia. 1826.
 — *leucophyllus* (white-leaved). 2. Pink. July. N. Amer. 1826.
 — *litoralis* (shore). 1. Blue, pink. July. Columbia. 1826.
 — *lucidus* (shining-leaved). 2. Purple. July. N. Amer.

- L. macrophyllus* (large-leaved). 4. Blue. July. California. 1834.
 — *Nootkatensis* (Nootka Sound). 2. Purple. July. Nootka Sound. 1794.
 — *ornatus* (ornamented). 2. Blue, pink. May. Columbia. 1826.
 — *perennis* (smooth-perennial). 2. Blue. June. N. Amer. 1658.
 — *plumosus* (feathery). 3. Blue. June. California. 1820.
 — *polyphyllus* (many-leaved). 4. Blue. June. Columbia. 1826.
 — *abiflorus* (white-flowered). 4. White. July. Columbia. 1826.
 — *rivularis* (river-side). 3. White, purple. April. California. 1831.
 — *Sabinianus* (Sabine's). 3. Yellow. N. Amer. 1827.
 — *sericeus* (silky). 1. Purple. May. N. Amer. 1826.
 — *subcarneus* (fleshyish-leaved). 1. Blue, white. July. Texas. 1835.
 — *tristis* (sad-coloured). 4. Pale brown. July. N. Amer.
 — *villosus* (shaggy). 2. Pink. July. Carolina. 1787.

LUXEMBERGIA. (Named after the Duke of Luxemburg. Nat. ord., *Sauvageads* [*Sauvagesiacæ*]. Linn., 16-Monadelphia 8-Polyandria.)

Stove evergreen shrubs, yellow-flowered, from Brazil. Cuttings of half-ripened shoots in sand, under a bell-glass, and in a gentle bottom-heat; peat and loam. Summer temp., 60° to 75°; winter, 48° to 55°. They require a constant liberal supply of moisture.

- L. ciliosa* (hair-fringed-leaved). 4. June. 1841.
 — *corymbosa* (corymbed). 5. May.

LYCASTE. (Named after a beautiful woman of Sicily. Nat. ord., *Orchids* [*Orchidaceæ*]. Linn., 20-Gynandria 1-Monandria. Allied to *Maxillaria*.)

Stove orchids. Division of the plant, as growth is commencing; open baskets, in sphagnum, fibry peat, and pieces of charcoal. Summer temp., 60° to 90°; winter, 50° to 60°.

- L. aromatica* (aromatic). Orange. May. Mexico. 1828.
 — *retusa* (bent-back-tipped). 1. Yellow. May. Brazil.
 — *Barringtonia* (Barrington's). Yellow, brown. April. Jamaica. 1790.
 — *ciliata* (hair-fringed). July. Brazil. 1839.
 — *Colleyi* (Colley's). Brown. July. Demerara. 1836.
 — *costata* (ribbed). Peru. 1842.
 — *crinita* (hairy). 1. Yellow, brown. March. Guatemala. 1840.
 — *cruenta* (bloody). 1. Orange, crimson. March. Guatemala. 1841.
 — *Deppii* (Deppé's). 1. Yellow, brown. June. Kalapa. 1828.
 — *fulvescens* (tawny). 2. Brown, orange. Columbia.
 — *gigantea* (gigantic). 2. Greenish. August. Guayaquil. 1848.
 — *Harrisonia* (Mrs. Harrison's). 1½. Cream, purple. Brazil. 1838.
 — *alba* (white). 1½. White. August. Brazil. 1840.
 — *la'nipes* (woolly-flower-stalked). Purple, green. Guayaquil. 1848.
 — *platina* (flat-flowered). Greenish. October. Bolivia. 1841.

- L. macrophylla* (large-leaved). Green, brown, white. December. Mexico. 1837.
 — *Skinneri* (Skinner's). 1. White, crimson. October. Guatemala. 1842.
 — *alba* (white). White. October. Guatemala. 1841.
 — *tetragona* (four-angled). 2. Greenish. Brazil. 1842.
 — *tyrianthina* (bright violet). Bright violet. July. Brazil. 1836.

LYCHNIS. (From *lychnos*, a lamp; referring to the brilliancy of the flowers. Nat. ord., *Clovesworts* [Caryophyllaceæ]. Linn., 10-*Decandria* 4-*Pentagynia*.)

The hardy herbaceous are chiefly cultivated; seed, division, and cuttings under a hand-light of the young shoots, as growth commences, in spring. Small side-shoots may be obtained from flowering stems, but they do not answer so well; rich, sandy loam. They require dividing often in spring, and fresh soil to grow in. *Grandiflora* requires protection in a cold pit in winter; double flowers require more attention in changing the soil than single ones.

TENDER KINDS.

- L. grandiflora* (large-flowered). 1½. Red. July. China. 1774. Greenhouse herbaceous.
 — *mutabilis* (changeable). Pink. June. Andes. 1844. Stove evergreen.

HARDY ANNUALS.

- L. cœli ro'sa* (rose of heaven). 1. Flesh. July. Levant. 1713.
 — *Nicae'nsis* (Nicean). 3. White, red. June. Nice. 1796.

HARDY HERRACEOUS.

- L. alpina* (alpine). ½. Pink. April. Scotland.
 — *apetala* (petal-less). 1½. White. June. Lapland. 1810.
 — *pauciflora* (few-flowered). White. June. Siberia. 1817.
 — *Chalcedonica* (Chalcedonian). 2. Scarlet. June. Russia. 1596.
 — *alba* (white). 2. White. June. Russia.
 — *fl're-albo-pleno* (double-white-flowered). 2. White. June. Gardens.
 — *fl're-pleno* (double-flowered). Scarlet. June. Russia.
 — *coronaria* (crowned). 3. Red. July. Italy. 1596.
 — *alba* (white). 3. White. July.
 — *plena* (double). 1½. Red. July.
 — *rubra* (red). Red. July.
 — *Corsica* (Corsican). ½. Red. June. Corsica. 1819.
 — *diurna* (day-flowering). 2. Purple. June. Britain.
 — *plena* (double). 1. Purple. June. Britain.
 — *fl's-Jovis* (flower-of-Jove). 1½. Red. July. Germany. 1726.
 — *fl's-cuculi* (cuckoo-flower). 1½. Pink. July. Britain.
 — *albiflora* (white-flowered). 1½. White. July. Britain.
 — *plena* (double). 1. Pink. July.
 — *fulgens* (shining). 1½. Scarlet. June. Siberia. 1822.
 — *Helveticæ* (Swiss-alpine). ½. Red. July. Switzerland. 1814.
 — *la'ta* (joyful). ½. Flesh. Portugal. 1778.
 — *neglecta* (neglected). ½. White. June.
 — *Pyrenaica* (Pyrenean). ½. White. June. Pyrenees. 1819.
 — *Sibirica* (Siberian). ½. White. June. Siberia. 1817.
 — *vespertina* (evening-flowering). 2. White. June. Britain.

- L. vespertina multiplex* (double). White. June.
 — *ro'sea* (rosy). White, red. June. Britain.
 — *viscaria* (clammy). 1. Pink. May. Britain.
 — *plena* (double). 1. Red. May. Britain.

LYCIUM. Box Thorn. (From *lychion*, an ancient name of no meaning. Nat. ord., *Nightshades* [Solana'ceæ]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Juanulloa*.)

Cuttings of ripened shoots in autumn or spring, under a hand-light; common, sandy loam. The tender kinds require protection. They are mostly of a free, rambling, half-climbing character; and *Europæum* and its congeners are thus well-fitted for covering arbours, unsightly walls, &c.; *Afrum* does well on a conservatory wall, and its fruit is pretty, and it blooms very freely.

EVERGREENS.

- L. Carolinia'num* (Carolina). 4. Blue. July. Carolina. 1806. Hardy shrub.
 — *cine'reum* (ash-coloured). 5. Violet. June. Cape of Good Hope. 1818. Greenhouse shrub.
 — *horridum* (horrid. Very prickly). 3. White. July. Cape of Good Hope. 1791. Greenhouse shrub.
 — *tenue* (slender). 4. Violet. June. Cape of Good Hope. 1819. Greenhouse shrub.

DECIDUOUS CLIMBERS.

- L. Afrum* (African Tea Tree). 10. Violet. June. Cape of Good Hope. 1712. Tree.
 — *Barbarum* (Barbary). 12. Violet. June. Barbary. 1696.
 — *Chinense* (Chinese). 6. Purple. July. China.
 — *Europæum* (European). 12. Pink. June. South Europe. 1730.
 — *chrysocarpum* (yellow-fruited). 12. May.
 — *sphaerocarpum* (round-fruited). 12. May.
 — *fuchsoides* (fuchsia-like). 5. Scarlet, yellow. June. Azouques. 1843.
 — *lanceolatum* (spear-head-leaved). 12. Pink. June. South Europe.
 — *microphyllum* (small-leaved). 4. Violet. June. Cape of Good Hope. 1795.
 — *rigidum* (stiff). 4. Violet. April. Cape of Good Hope. 1795. Shrub.
 — *Ruthenicum* (Russian). 6. White. Siberia. 1804.
 — *Caspicum* (Caspian). July. Caspian Sea.
 — *Shawii* (Shaw's). 8. Pink. July. Cape of Good Hope. 1700. Greenhouse climber.
 — *tetrandrum* (four-stamened). 4. Violet. June. Cape of Good Hope. 1810.
 — *Trewia'num* (Trew's). 15. Purple. June. China. 1818.
 — *turbina'tum* (top-shaped). 12. Violet. June. China. 1709.

LYCOPE'RICON. Love-apple, or Tomato. (From *lykos*, a wolf, and *persicon*, a peach. Nat. ord., *Nightshades* [Solana'ceæ]. Linn., 5-*Pentandria* 1-*Monogynia*.) See LOVE-APPLE.

All annuals, except *Peruvia'num*, and natives of South America. Seeds in a hotbed, in March, potted once or twice, and planted out in May; *esculentum* generally against walls or palings, in order that the fruit may be ripened for sauce and soups; rich soil; the plant must be well thinned and stopped above the fruit. To have the fruit is the object.

- L. cerasiforme* (cherry-shaped). 3. Green. July. 1800.
 — *lutum* (yellow-fruited). 3. Green. July. 1596.
 — *commutatum* (changed). 3. Yellow. July. 1818.
 — *esculentum* (eatable). 3. Green. July. 1596.
 — *chrysocarpum* (yellow-fruited). 3. Green. July. 1596.
 — *erythocarpum* (red-fruited). 3. Green. July. 1596.
 — *leucocarpum* (white-fruited). 3. Green. July. 1596.
 — *Humboldtii* (Humboldt's). 3. Yellow. August. 1822.
 — *Peruvianum* (Peruvian). 3. Yellow. May. 1823. Stove herbaceous.
 — *procumbens* (lying-down). 1. Cream. July. 1700.
 — *pyriforme* (pear-shaped). 3. Yellow. August. 1823.

LYCOPODIUM. Club Moss. (From *lykos*, a wolf, and *pous*, a foot; the roots having a resemblance to that animal's paw. Nat. ord., *Lycopods* [Lycopodiaceæ]. Linn., 24-Cryptogamia 3-Lycopodineæ.)

These flourish best in a greenhouse or conservatory. They may be grown in pots, but do best as a carpet over the surface of the beds or borders. They are easily propagated by cuttings in the spring. *L. apodum*, *apothecium*, *circinatum*, *cordatum*, *caesium*, *denticulatum*, *lepidophyllum*, *stoloniferum*, and *umbrosum* may be propagated by division at the same season. They require a plentiful supply of moisture, and a turfy loam for their soil, though they will grow in any light loam. *L. caesium* and *Helveticum* turn brown if exposed to much light.

- L. apodum* (stemless). 3. N. Amer. 1819.
 — *Brazilense* (Brazilian). 3. Brazil.
 — *circinatum* (circular). 3. E. Ind. 1831.
 — *cordatum* (heart-shaped-leaved). 1. 1838.
 — *caesium* (blue). 3. China. 1845.
 — *arborescens* (tree-like).
 — *denticulatum* (toothed). 3. Switzerland. 1779.
 — *dichotomum* (two-ranked).
 — *flabulare* (slender).
 — *Galeottii* (Galeott's).
 — *lepidophyllum* (scale-leaved). This is very small, very rare, and requires stove heat.
 — *plumosum* (feathery). 3.
 — *Schottii* (Schott's).
 — *stoloniferum* (runner-bearing). 1. Brazil. 1831.
 — *Wildenowii* (Wildenow's).

LYCOPSIS. (The name of a woman in Roman history. Nat. ord., *Amaryllids* [Amaryllidaceæ]. Linn., 6-Hexandria 1-Monogynia. Allied to *Valotta*.)

Hardy bulbs, from China. *Aurea* is a pretty bulb, with greyish leaves, requiring a deep, sandy-soiled border; but, as it grows all the winter, it is best kept in a pot. *Radialis* is a shy bloomer. For culture, see **AMARYLLIS**.

- L. aurea* (golden). 1. Yellow. August. 1777.
 — *radialis* (rayed). 1½. Pink. June. 1758.
 — *straminea* (straw-coloured-flowered). Striped. June. 1847.

LYCOPDIUM. Snake's Tongue. (From *lygodes*, flexible; referring to the twining habit. Nat. ord., *Ferns* [Polypodiaceæ]. Linn., 24-Cryptogamia 1-Filices.)

Stove climbing Ferns. See **FERNs**.

- L. articulatum* (jointed). Brown, yellow. May. New Zealand. 1344.
 — *circinatum* (curled). 6. Brown. August. E. Ind. 1823.
 — *flexuosum* (zigzag). Brown, yellow. May. E. Ind. 1834.
 — *hastatum* (halbert-shaped). 6. Brown. August. Maranhatta. 1820.
 — *Japonicum* (Japanese). Brown, yellow. May. Japan. 1830.
 — *Mexicanum* (Mexican). Brown. Mexico. 1831.
 — *palmatum* (hand-shaped). 6. Brown. August. N. Amer.
 — *polymorphum* (many-form). 6. Brown. August. S. Amer. 1820.
 — *scandens* (climbing). 6. Brown. May. E. Ind. 1793.
 — *venustum* (pleasing). Brown, yellow. May. S. Amer. 1845.
 — *volubile* (twining). 6. Brown. August. W. Ind. 1810.

LYONIA. (Named, by Nuttall, after *J. Lyon*, an American collector of plants. Nat. ord., *Heathworts* [Ericaceæ]. Linn., 10-Decandria 1-Monogynia. Allied to *Andromeda*.)

Hardy white-flowered evergreens, from North America. Chiefly by layers, in a damp, peat border; also by seeds in sandy peat, best under hand-lights, and sparingly covered; sandy peat, and cool situation. Several species of *Andromeda* should be moved to this genus.

- L. capreaefolia* (tendrill-leaved). 3. July. 1812.
 — *ferruginea* (rusty). 3. June. 1734.
 — *frondosa* (leafy). 3. May. 1806.
 — *multiflora* (many-flowered). 2. July.
 — *paniculata* (panicled). 3. May. 1748.
 — *rigida* (stiff). 30. July. 1774.

LYONSIA. (Named after *J. Lyons*, who first taught botany to Sir Joseph Banks. Nat. ord., *Dogbanes* [Apocynaceæ]. Linn., 5-Pentandria 1-Monogynia. Allied to *Parsonsia*.)

Greenhouse evergreen twiner. Cuttings of the young shoots in sand, under a glass, and in a close frame, in April; sandy peat, with a little fibry loam. Winter temp., 40° to 48°.

- L. straminea* (straw-coloured). 6. Striped. June. N. Holland. 1820.

LYPERIA. (From *lyperos*, sad; from the dulness of some of the flowers. Nat. ord., *Figworts* [Scrophulariaceæ]. Linn., 14-Didynamia 2-Angiospermia. Allied to *Manulea*.)

Greenhouse evergreens, from Cape of Good Hope. By seed in a slight hotbed, in March and April, and cuttings of young shoots in spring and autumn, in sandy soil, under a hand-glass; sandy loam; the protection of a cold pit or greenhouse in winter. *Erius*, *Lychnidea* and *tristis* should be added to this genus.

- L. argentea* (silvery). 1½. White. August. 1801. Annual.
 — *fragrans* (fragrant). 3. White, purple. June. 1776.
 — *pedunculata* (long-flower-stalked). 1½. White. August. 1790.
 — *pinnatifida* (leaflet-like-leaved). 2. Purple. July. 1840.
 — *violacea* (violet). 2. Violet. July. 1816.

LYSIMACHIA. Loosestrife. (From *lysis*, concluding, and *mache*, strife; supposed soothing qualities. Nat. ord., *Primeworts* [Primulacæ]. Linn., 5-*Pentandria* 1-*Monogynia*.)

All yellow-flowered, except where otherwise mentioned. Division in spring, and cuttings of the young shoots under a hand-light, in sandy loam, in a shady corner. There are a few annuals and biennials not worth culture.

GREENHOUSE.

- L. atro-purpurea* (dark purple). 1. Dark purple. August. Levant. 1820. Herbaceous.
— *caudata* (white). 1. White. June. China. 1846. Herbaceous.
— *maculata* (spotted). 4. June. N. Holland. 1822. Evergreen trailer.

HARDY HERBACEOUS.

- L. affinis* (related). 24. July.
— *angustifolia* (narrow-leaved). 14. July. N. Amer. 1803.
— *Azoica* (Azorean). 1. June. Azores. 1831.
— *capitata* (headed). 1. June. N. Amer. 1813.
— *ciliata* (hair-fringed). 2. July. N. Amer. 1732.
— *ephemerum* (transient). 2. White. August. Spain. 1730.
— *hybrida* (hybrid). 14. July. N. Amer. 1806.
— *Lobelioides* (Lobelia-like). 1. White. July. North of India. 1840.
— *longifolia* (long-leaved). 2. July. N. Amer. 1798.
— *nummularia* (moneywort-like). 4. June. Britain. Evergreen.
— *punctata* (dotted). 14. July. N. Holland. 1658.
— *quadrifolia* (four-leaved). 2. July. N. Amer. 1794.
— *stricta* (erect). 14. July. N. Amer. 1791.
— *thyrsiflora* (thyrses-flowered). 14. June. England. Aquatic.
— *verticillata* (whorled). 1. July. Crimea. 1820.

LYSINEMA. (From *lysis*, freeing, and *nema*, a filament. The stamens not adhering to the sides of the corolla, as is usual in this Nat. ord., *Epacrids* [Epacridacæ]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Epacris*.)

Greenhouse evergreen shrubs, from New Holland. Cuttings of the young shoots, getting firm at the base,—short shoots, a couple of inches in length, are the best,—in sand, under a bell-glass, in the beginning of summer; rough, sandy peat, with pieces of charcoal, broken bricks, and freestone, and well-drained. Winter temp., 40° to 45°.

- L. attenuatum* (thin). 2. White. February. 1812.
— *conspicuum* (conspicuous). 3. March. 1824.
— *lasianthum* (hairy-flowered). 2. Pink. March. 1820.
— *pentapetalum* (five-petaled). 2. Pink. March. 1823.

- *pungens* (pungent). 2. White. March. 1804.
— *rubrum* (red). 2. Red. March. 1804.

LYSIONOTUS. (From *lysis*, freeing, and *notos*, the back; seed-vessel opening from the back. Nat. ord., *Gesneriworts* [Gesneracæ]. Linn., 14-*Didynamia* 1-*Gymnospermia*. Allied to *Agalya*.)

Stove herbaceous. Seeds in light, sandy soil, in a hotbed, in spring; division of the plant at the same time; peat and loam. Summer temp., 60° to 75°; winter, 45° to 50°.

L. longiflorus (long-flowered). Crinason. November. Java.

LYTHRUM. (From *lythron*, black-blood; the prevailing purple colour of the flowers. Nat. ord., *Loosestrifes* [Lythracæ]. Linn., 11-*Dodecandria* 1-*Monogynia*.)

All purple-flowered, except *lined're*. Seeds of annuals, in the common border, in spring; perennials, by division at the same time. *Alatum* is an old resident of the greenhouse, propagated by division and cuttings of the young shoots, or the points of old ones, and forms a fair bed of purple for the flower-garden in summer, requiring the greenhouse or cold frame in winter. The following are all hardy herbaceous, except *alatum*, just mentioned, and *Græfferi*, which is a hardy annual.

- L. alatum* (wing-stalked). 3. July. Amer. 1812.
— *Græfferi* (Græffer's). 14. July. Italy. 1890.
— *lanceolatum* (spear-head-leaved). July. Carolina. 1809.
— *lined're* (narrow-leaved). 14. White. July. N. Amer. 1812.
— *myrtifolium* (myrtle-leaved). 2. July. N. Amer. 1820.
— *salicaria* (willow-like). 4. July. Britain.
— *tomentosum* (woolly). 2. July. Caucasus. 1828.
— *virgatum* (twiggy). 3. July. Austria. 1776.

M.

MA'BA. (From the native name. Nat. ord., *Ebenads* [Ebenacæ]. Linn., 22-*Dieceia* 6-*Hexandria*. Allied to *Diospyros*.)

Stove evergreen shrubs. Cuttings of half-ripened shoots in May, under a glass, in sand, over fibry peat, and a very slight bottom-heat; peat and loam.

- M. buxifolia* (box-leaved). 14. Yellow. E. Ind. 1810. Stove.
— *laurina* (laurel-like). 3. July. N. Holland. 1824.

MACBRI'DEA. (Named after Dr. Macbride, of S. Carolina. Nat. ord., *Labiates*, or *Lipworts* [Lamiacæ]. Linn., 14-*Didynamia* 1-*Gymnospermia*. Allied to *Melittis*.)

Greenhouse evergreen. Cuttings of young shoots, getting firm at their base, in May; loam and a little sandy peat, well-drained.

- M. pulchra* (pretty). Red-striped. July. Carolina. 1804.

MACHERA'NTHERA. (From *makaira*, a bent sword, and *anthera*, an anther; alluding to the shape of that part of the flower. Nat. ord., *Composites* [Asteracæ]. Linn., 19-*Syngenesia* 2-*Superflua*.)

A tender biennial, but hardy enough for the border in summer.

- M. tanacetifolia* (tansy-leaved). 1. Purple. July. New Mexico. 1851.

MACLEA'NIA. (Named after John Maclean, Esq., of Lima, a British merchant, and a distinguished patron of botany. Nat. ord., *Cranberries* [Vaccinia-

cæe]. Linn., 10-*Decandria* 1-*Monogynia*. Allied to *Thibaudia*.)

Greenhouse evergreens. Cuttings under a hand-light or bell-glass of the points of the shoots, when getting firm at their base, in sand, and kept close in a cold pit, a little air left under the glass, if placed in a slight hotbed; sandy loam and fibry peat. Winter temp., 40° to 48°.

M. angulata (angled). 3. Red, yellow. June. Peru. 1842.

— *cordata* (heart-leaved). Orange. Mexico. 1848.
— *longiflora* (long-flowered). 5. Red. May. Peru. 1844.

MACLEA'YA. (Named after *A. Macleay*, a British naturalist. Nat. ord., *Poppy-worts* [Papaveraceæ]. Linn., 11-*Dodecandria* 1-*Monogynia*. Allied to *Bocconia*.)

Hardy herbaceous. By seeds, and dividing the roots in spring; rich soil.

M. cordata (heart-leaved). 6. Red, yellow. June. China. 1795.

MACLU'RA. (Named after *W. Maclure*, a North American geologist. Nat. ord., *Morads* [Moraceæ]. Linn., 21-*Monæcia* 4-*Tetrandria*. Allied to *Broussonetia*.)

Cuttings of ripe shoots under a glass, in heat; *aurantiaca* by cuttings of the root and layers; soil, peat and loam. Although *aurantiaca* is hardy, it requires a warm situation.

M. aurantiaca (Osage-orange). 20. N. Amer. 1818. Hardy deciduous.

— *Plumieri* (Plumier's). 20. W. Ind. 1804. Stove evergreen.

— *tinctoria* (dyer's). 20. W. Ind. 1739. Stove evergreen.

MACRADE'NIA. (From *makros*, long, and *aden*, a gland; referring to the long process of the pollen-masses. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-*Gynandria* 1-*Monandria*. Allied to *Notylia*.)

Stove orchid. Division when growth is commencing; fibry peat, charcoal, and broken pots and sphagnum; the plants raised above the pot requiring a strong, moist heat in the orchard-house when growth is proceeding, and cooler and drier when resting.

M. luteo-scens (clay-coloured). $\frac{1}{2}$. Olive. November. Trinidad. 1821.

MACRA'NTHUS. (From *makros*, long, and *anthos*, a flower. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 17-*Diadelphia* 4-*Decandria*. Allied to *Abrus*.)

The seed-pods are used in Cochin China as a vegetable, cooked like kidney-beans. Hardy climbing annual; by seeds in a hotbed, hardened off, and then grown out of doors, or in a greenhouse; rich loam, and a little peat.

M. Cochinchinensis (Cochin China). White. June. Cochin China. 1826.

MACROCNE'MUM. (From *makros*, long, and *kne-m*, a leg; referring to the flower-stalks. Nat. ord., *Cinchonads* [Cinchonaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Portlandia*.)

Stove evergreen trees. Cuttings of ripe shoots

in sand, under a bell-glass, and in a brisk bottom-heat; peat and fibry loam, well drained. Winter temp., 65° to 60°; summer, 60° to 85°.

M. Jamaicaense (Jamaica). 14. White. Jamaica. 1806.

— *tinctorium* (dyeing). 30. Red. September. Trinidad. 1820.

MACROME'RIA. (From *makros*, long, and *meris*, a part; referring to the unusual length of the stamens. Nat. ord., *Borageworts* [Boraginaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*.)

Half-hardy evergreen shrub, requiring the protection of a cold pit in winter; seeds and divisions in spring; sandy loam and fibry peat.

M. exserta (projecting-stamened). 3. Yellow. September. Mexico. 1846.

MACRO'STYLIS. (From *makros*, long, and *stylis*, a style, or female organ. Nat. ord., *Rueworts* [Rutaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Agathosma*.)

Greenhouse evergreen shrubs, from the Cape of Good Hope. Cuttings of young shoots getting firm, in April or May, in sand, under a bell-glass, and kept in a close place, but without bottom-heat; sandy peat and fibry loam, but most of the former. Winter temp., 40° to 48°.

M. barbata (bearded). 2. White. May. 1810.

— *barbifera* (beard-bearing). Lilac. April. 1826.

— *cordata* (heart-leaved). Lilac. April. 1823.

— *obtusata* (blunt-leaved). 2. Purple. May. 1774.

— *lanceolata* (spear-head-leaved). 2. Purple. May. 1774.

— *oblongata* (oblong-leaved). 2. Purple. May. 1774.

— *ovata* (egg-leaved). 2. Purple. May. 1774.

— *squarrosa* (spreading). Lilac. April. 1821.

MACRO'TROPIS. (From *makros*, long, and *tropis*, a keel; referring to the length and name of the lower part of a pea-flower. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 10-*Decandria* 1-*Monogynia*. Allied to *Sophora*.)

Greenhouse evergreen shrubs, from China. Cuttings of small side-shoots, taken off in spring, in sand, under a bell-glass; seeds sown in a slight hotbed, and potted off when up; peat and loam, in equal divisions. Winter temp., 40° to 48°.

M. fetida (fetid). 6. Yellow. April. 1820.

— *inodora* (scentless). White. April. 1821.

MADAGASCAR NUTMEG. *Agathophyllum*.

MADAGASCAR POTATO. *Solanum anguivi*.

MAD-APPLE. *Solanum insiduum*.

MADDER. *Rubia*.

MA'DIA. (The Chilian name of *M. sati'va*. Nat. ord., *Composites* [Asteraceæ]. Linn., 19-*Syngenesia* 2-*Superflua*. Allied to *Sphenogyne*.)

Hardy annuals. Seeds in a slight hotbed, in March or April, and afterwards transplanted or sown in the middle of May, on a warm border, where they are to bloom; any garden-soil, if not fully exposed to the midday sun, for then there will be no danger of a rusty appearance.

M. corymbosa (corymbed). White. September. California. 1847.

M. elegans (elegant). 1½. Yellow. August. North West America. 1831.
— *sativa* (cultivated). Yellow. July. Chili. 1794.

MADWORT. *Alyssum*.

MÆ'SA. (From *maas*, the Arabic name of one of the species. Nat. ord., *Ardisiads* [Myrsinaceæ]. Linn., 5-Pentandria 1-Monogynia. Allied to *Ardisia*.)

Stove evergreen shrubs, with white blossoms, from the East Indies. By seeds, which are a considerable time in vegetating; by cuttings of the half-ripened shoots in sand, over sandy peat, under a bell-glass, and in bottom-heat; peat and loam. Winter temp., 50° to 60°; summer, 60° to 85°.

M. argentea (silvery). 5. April. 1818.
— *Indica* (Indian). 5. November. 1817.
— *macrophylla* (large-leaved). 12. June. 1818.
— *memoralis* (wood). 5. March. 1830.
— *pubescens* (downy). 4. June. 1824.

MAGNO'LIA. (Named after Professor Magnol, of Montpellier. Nat. ord., *Magnoliads* [Magnoliaceæ]. Linn., 13-Polyandria 6-Polygynia.)

A noble genus, all white-flowered, except where otherwise mentioned. Propagated by seeds, layers, grafting, and budding; and each of these modes best suits different kinds. Seeds of most of the American kinds are easily procured thence, and from France, where, in their clearer sky, the trees thrive better, and ripen their seeds, which they seldom do with us. The seeds should be sown in a hotbed, in spring, and a little patience should be exercised until the seedlings make their appearance, when they must be successively potted, and kept several years in a cold pit in winter. Though the most vigorous plants are thus raised, yet, as they are long in blooming, preference is usually given to plants raised from layers of all the stronger-growing kinds. These are generally laid down in the autumn, and the best part of two years generally elapses before they are fit to be moved, when they should be potted, and kept in a pit until well established. No one should purchase a young plant, except in a pot, as the few, but large, fleshy roots are easily injured. Some of the more succulent-stemmed kinds, with large pith, can neither be easily layered nor grafted—such as *tripe'tala* and *macrophylla*. For these seedlings are the best, and the seed ripens freely in different parts of France. Most of the varieties and the weaker species may be budded, and grafted, and inarched on the stronger-growing, more easily-reared kinds. *Obovata* and *acuminata* are much used for this purpose. In most cases it requires a considerable time to effect the union. In many cases, where inarching is resorted to, two years must elapse before the separation can be effected safely. The tenderer Chinese and Asiatic species require, in general, protection in winter; the former a cold pit or greenhouse, the latter a wall, &c. They are propagated by layers, and also by cuttings, as well as seeds. The cuttings should be of ripe shoots, and inserted in sand, under a glass. Many kinds, however, will propagate by the herbaceous-like young shoots; but more attention to shading, &c., is required. All delight, when planted out, in a deep, sandy soil, quite dry, and enriched with peat and a little leaf-mould. *Glaucæ*, however, generally thrives best in a peaty soil rather retentive of moisture.

HALF-HARDY DECIDUOUS.

M. conspicua (conspicuous). 30. March. China. 1789.
— *obovata* (reversed-egg-leaved). 6. Purple. July. China. 1790.
— *discolor* (two-coloured). 6. Purple, white. May. 1790.

HALF-HARDY EVERGREENS.

M. fuscata (brown-stalked). 3. Brown. April. China. 1789.
— *anonæfolia* (anona-leaved). 3. Red. June. China. 1789.
— *odoratissima* (sweetest-scented). 10. July. Java. 1829. Stove.

HARDY EVERGREENS.

M. grandiflora (large-flowered). 20. August. Carolina. 1734.
— *angustifolia* (narrow-leaved). 20. July. Paris. 1825.
— *crispata* (curled). 20. June. N. Amer.
— *elliptica* (oval). 20. August. Carolina. 1734.
— *Exoniensis* (Exeter). 20. August. N. Amer.
— *ferruginea* (rusty). 20. August. N. Amer.
— *lanceolata* (spear-head-leaved). 20. August. Carolina. 1734.
— *obovata* (reversed-egg-leaved). 20. August. Carolina. 1734.
— *præcox* (early). 20. August. N. Amer.
— *rotundifolia* (round-leaved). 20. August. N. Amer.
— *Kobus* (Kobus). Purple, white. July. Japan. 1804.

HARDY DECIDUOUS.

M. acuminata (pointed-leaved). 60. Yellow, green. June. N. Amer. 1736.
— *Cando'llii* (De Candolle's). 60. June. N. Amer. 1736.
— *maxima* (largest-leaved). 60. June. N. Amer. 1736.
— *auriculata* (ear-leaved). 40. April. Carolina. 1786.
— *cordata* (heart-leaved). 40. June. N. Amer. 1801.
— *glaucæ* (milky-green). 20. July. N. Amer. 1683.
— *Burchelliana* (Burchell's-double). 20. June.
— *Gordoniana* (Gordon's-double). 20. June. 1750.
— *gracilis* (slender). Purple. April. Japan. 1804.
— *macrophylla* (large-leaved). 30. July. N. Amer. 1800.
— *purpurea* (purple). Purple. April. Japan. 1790.
— *pyramidalis* (pyramidal). 20. May. Carolina. 1811.
— *tripe'tala* (three-petaled). 30. May. N. Amer. 1752.

MAGPIE MOTH. See ABRAXAS.

MAHE'RNA. (An anagram of *Her-mannia* an allied genus. Nat. ord., *Byttneriads* [Byttneriaceæ]. Linn., 16-Monadelphia 2-Pentandria.)

Greenhouse evergreen shrubs, about two feet high, from the Cape of Good Hope. Cuttings of young shoots, an inch or two in length, in sandy soil, under a glass any time in summer; fibry loam and sandy peat, with lumps of charcoal and broken pots, intermixed when grown in pots. In summer they will do in the flower-garden, and did the flowers look up a little anore, they would

be very interesting; from their habit they are seen to best advantage in a pot.

- M. glabra*'ta (smooth). Yellow. June. 1789.
 — *grandiflo*'ra (large-flowered). Red. June. 1812.
 — *heterophy*'lla (various-leaved). Yellow. May. 1731.
 — *inc*'sa (cut-leaved). Yellow, white. July. 1792.
 — *oxalidifol*'ia (oxalis-leaved). Yellow. June. 1817.
 — *pulche*'lla (neat). Reddish. July. 1792.
 — *vernica*'ta (varnished). Vermilion. July. 1816.
 — *verticilla*'ta (whorled). Yellow. July. 1820.
 — *vesica*'ria (bladdery). Yellow. June. 1818.

MAHOGANY-TREE. *Swiete*'nia.

MAHO'NIA. A synonyme of Berberis.

MAHU'REA. (The native name. Nat. ord., *Theads* [Ternströmiaceæ]. Linn., 16-Monadelphia 8-Polyandria. Allied to *Stuarta*.)

Stove evergreen tree. Cuttings of half-ripened shoots in sand, under a bell-glass, and in a moderate bottom-heat, any time in summer; sandy peat and fibry loam. Winter temp., 50° to 60°; summer, 60° to 80°.

M. palu'stris (marsh). 15. Purple. May. Trinidad. 1820.

MAIDEN-HAIR. *Passiflo*'ra *adia*'ntum, and *Adia*'ntum *capill*'us *Vene*'ris, &c.

MAIDEN-HAIR-TREE. *Salisbu*'ria *adi*'antifolia.

MAIDEN PLUM. *Comocla*'dia.

MAIDEN TREE is a seedling tree which has not been grafted.

The time which elapses before seedlings attain a bearing age is very various. The pear requires from twelve to eighteen years; the apple, five to thirteen; plum and cherry, four to five; vine, three to four; raspberry, two; and the strawberry, one.

MA'RIA. (Derivation not explained. Nat. ord., *Composites* [Asteraceæ]. Linn., 10-Syngenesia 1-Æqualis. Allied to Aster.)

Half-hardy herbaceous plants, from Cape of Good Hope; seeds, and division in spring; requiring the protection of a dry, cold pit in winter; sandy loam and a little peat.

M. crena'ta (scalloped-leaved). Lilac. April. 1820.
 — *taxifol*'ia (yew-leaved). Yellow. July. 1816.

MAJE'TA. (The native name. Nat. ord., *Melastomads* [Melastomaceæ]. Linn., 10-Decandria 1-Monogynia. Allied to *Medinilla*.)

Stove evergreen shrub. Cuttings of young shoots, getting a little firm, in sandy soil, and in bottom-heat, in April and May; peat and loam, with a little charcoal and brick-rubbish. Winter temp., 60° to 66°; summer, 60° to 80°.

M. Guiane'nsis (Guianan). 2. White. Guiana. 1824.

MAJORA'NA. See ORI'GANUM.

MALABAR LEAF. *Cinnamo*'mum *Mala*'ba'thrum.

MALABAR NIGHTSHADE. *Base*'lla.

MALABAR ROSE. *Hibi*'scus *ro*'sa *Ma*'laba'rica.

MALOCODE'NDRON. See STUA'RTIA.

MALA'XIS. (From *mala*'xis, delicate; referring to the whole plant. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-Gynandria 1-Monandria. Allied to *Calypso*.)

Terrestrial orchids, growing in sandy peat, and in moist places; division of the roots.

M. paludo'sa (marsh). 4. Yellow, green. July. England. Hardy.

— *Partho*'ni (Parthons's). Green. June. Brazil. 1838. Stove.

MALAY APPLE. *Jambo*'sa *Malacce*'nsis.

MALCO'LMIA. (Named after *W. Malcolm*, mentioned by Ray. Nat. ord., *Crucifers* [Brassicaceæ]. Linn., 15-Tradynamia. Allied to *Hesperis*.)

Hardy annuals, blooming in June, if sown early in April; but a succession may be kept up by sowing in the three following months; common garden-soil. *Arena*'rea, *Chi*'a, *incrassa*'ta, and *mar*'tima are the handsomest.

M. Africa'na (African). 4. Purple. Africa. 1744.

— *arena*'ria (sand). Violet. Algiers. 1804.

— *Chi*'a (Chian. Dwarf-branching). 1. Purple. Chio. 1732.

— *ero*'sa (gnawed-leaved). 4. Portugal. 1818.

— *incrassa*'ta (thick-leaf-stalked). Purple. Tenedos. 1820.

— *interme*'dia (intermediate). Purple. Caraccas. 1837.

— *la*'cera (torn-leaved). White, yellow. South Europe. 1780.

— *la*'sa (loose). 2. Purple. Siberia. 1820.

— *litto*'rea (shore). 1. White, yellow. South Europe. 1693.

— *lyra*'ta (lyre-shaped). 4. Purple. Cyprus. 1820.

— *mar*'tima (sea-side). 4. Violet. South Europe. 1718.

— *parvifo*'ra (small-flowered). 4. Lilac. South Europe. 1823.

— *runcina*'ta (runcinate). Purple. Caraccas. 1837.

— *taraxaci*'fia (dandelion-leaved). 4. Purple. Siberia. 1795.

MALE FERN. *Aspi*'dium *fi*'lix-ma's.

MALESHE'RBIA. (Named after a French patron of botany. Nat. ord., *Crownworts* [Malesherbiaceæ]. Linn., 5-Pentandria 1-Monogynia.)

Greenhouse annuals, from Chili. Seeds sown in a hotbed, in March, seedlings pricked off, potted, and flowered in the greenhouse; sandy peat and fibry loam, with a little very reduced leaf-mould.

M. fascicu'la'ta (fascicled). White. July. 1832.

— *hu*'milis (humble). 4. White. 1831.

— *linearif*'ia (narrow-leaved). 14. Purple, blue. September. 1831.

— *thyrsifo*'ra (thyrsae-flowered). Yellow. July. 1832.

MALLOW. *Ma*'lva.

MALLOW ROSE. *Hibi*'scus *moscheu*'tos.

MA'LOPE. (From *malos*, soft, or tender; referring to the texture of the leaves. Nat. ord., *Mallowworts* [Malvaceæ]. Linn., 16-Monadelphia 8-Polyandria.)

— *M. fascicu*'la'ta (fascicled). White. July. 1832.

— *hu*'milis (humble). 4. White. 1831.

— *linearif*'ia (narrow-leaved). 14. Purple, blue. September. 1831.

— *thyrsifo*'ra (thyrsae-flowered). Yellow. July. 1832.

MALLOW. *Ma*'lva.

MALLOW ROSE. *Hibi*'scus *moscheu*'tos.

MA'LOPE. (From *malos*, soft, or tender; referring to the texture of the leaves. Nat. ord., *Mallowworts* [Malvaceæ]. Linn., 16-Monadelphia 8-Polyandria.)

Hardy annuals, with purple flowers, from Barbary. Seeds sown under a glass, in March, or in the open border towards the end of April; earlier, if the ground is sandy and early.

- M. malacoides* (mallow-like). 1. June. 1710.
— *sinuata* (wavy-edged). July. 1716.
— *trifida* (three-cleft). 2. July. 1808.

MALPIGHIA. Barbadoes Cherry. (Named after *Professor Malpighi*, of Pisa. Nat. ord., *Malpighiads* [*Malpighiaceæ*]. Linn., 10-*Decandria* 3-*Triogynia*. Allied to *Galphimia*.)

Stove evergreen shrubs. Cuttings of young shoots almost ripe, but with leaves attached, except at the joint cut through, in sand, under a bell-glass, and in bottom heat, in summer; sandy peat and fibry loam. Winter temp., 50° to 55°; summer, 60° to 85°.

- M. aquifolia* (holly-leaved). 7. Pink. August. S. Amer. 1759.
— *biflora* (two-flowered). 10. Pale red. July. S. Amer. 1810.
— *coccifera* (berry-bearing). 2. Pink. S. Amer. 1733.
— *glabra* (smooth-leaved). 16. Rose. May. W. Ind. 1755.
— *incana* (hoary). Rose. Campeachy. 1742.
— *macrophylla* (large-leaved). Red, pink. July. Brazil. 1820.
— *nitida* (glossy-leaved). 6. Pink. May. W. Ind. 1733.
— *punicifolia* (pomegranate-leaved). 12. Rose. W. Ind. 1690.

MALVA. Mallow. (From *malacho*, to soften; referring to their emollient qualities. Nat. ord., *Mallowworts* [*Malvaceæ*]. Linn., 16-*Monadelphia* 8-*Polyandria*.)

Hardy annuals, by seeds in the open border in April; perennial herbaceous, such as *Monarda*, &c., by seeds under a hand-light, by division in spring, and by cuttings of the young shoots under a hand-light; stove and greenhouse species, by cuttings, generally inserted in sandy soil, under a hand-light; these last are best grown in rich, fibry loam and peat, and require merely the common treatment suitable to greenhouse and stove.

GREENHOUSE HERBACEOUS.

- M. angulata* (angled). 1. Purple. July. 1830.
— *campanuloides* (campanula-like). 4. Blush. October. N. Amer. 1825.
— *purpurea* (purpled). 1½. Pale red. July. Chili. 1825.

GREENHOUSE EVERGREENS.

- M. amœna* (pleasing). 3. Purple. April. Cape of Good Hope. 1796.
— *asperima* (roughest). 3. Red. July. Cape of Good Hope. 1796.
— *balsamica* (balsamic). 4. Pink. July. Cape of Good Hope. 1800.
— *bryonifolia* (bryony-leaved). 4. Purple. July. Cape of Good Hope. 1731.
— *campanulata* (bell-flowered). 1. Pink, lilac. July. Chili. 1839.
— *Capeensis* (Cape). 10. Red, white. June. Cape of Good Hope. 1713.
— *capitata* (headed). 2. Red. April. Peru. 1798.
— *fragrans* (fragrant). 3. Scarlet. June. Cape of Good Hope. 1759.

- M. laetea* (milk-coloured). 4. White. January. Mexico. 1780.

- *minuta* (red). 4. Red veins. June. S. Amer. 1698.
— *retusa* (bent-back-leaved). 4. Pink. April. Cape of Good Hope. 1803.
— *stricta* (erect). 3. White. April. Cape of Good Hope. 1805.
— *tridactylites* (three-fingered). 3. Pink. July. Cape of Good Hope. 1791.

STOVE HERBACEOUS.

- M. Domingensis* (Domingo). 2. Yellow. July. St. Domingo. 1824.
— *tricuspidata* (three-spined). 1. Yellow. July. W. Ind. 1726. Biennial.

STOVE EVERGREENS.

- M. Borbonica* (Bourbon). 4. Yellow. July. Mauritius. 1816.
— *coccinea* (scarlet). 5. Lilac. July. S. Amer. 1835.
— *concinna* (neat). 5. Lilac. May. S. Amer. 1835.
— *scaebra* (rough-stemmed). 4. Yellow. June. Peru. 1798.
— *scoparia* (broom-like). 6. Yellow. April. Peru. 1782.
— *spicata* (simple-spiked). 2. Orange. July. Jamaica. 1796.
— *tomentosa* (woolly). 3. Yellow. July. E. Ind. 1820.

HARDY ANNUALS.

- M. crispata* (curled). 5. White. June. Syria. 1573.
— *fulcida* (shining). Pink. June.
— *Mauritiana* (Mauritanian). 6. Pink. July. South Europe. 1768.
— *Mullerii* (Muller's). Sardinia. 1832. Biennial.

HARDY HERBACEOUS.

- M. Henningsii* (Henning's). 3. White, red. June. Russia. 1820.
— *involuta* (involverated). 1½. Purple. July. N. Amer.
— *Italica* (Italian). 3. Purple. August. Italy. 1829.
— *lateritia* (brick-coloured). 4. Red. September. Buenos Ayres. 1840.
— *Monarda* (Monro's). 2. Scarlet. August. Columbia. 1828.
— *Morenii* (Moren's). 3. Red. July. Italy. 1820.
— *moschatata* (musk). 2. Flesh. June. Britain.
— *undulata* (waved). 2. White. July.

MALVAVISCUS. (From *malva*, the Mallow, and *viscus*, glue; referring to the mucilage with which it abounds. Nat. ord., *Mallowworts* [*Malvaceæ*]. Linn., 16-*Monadelphia* 8-*Polyandria*.)

Stove evergreen trees. Cuttings of the somewhat stubby side-shoots in sand, under a bell-glass, and in heat; but the bell-glass must be elevated at night, to prevent damping; fibry peat, and sandy, lumpy loam. Winter temp., 50°; summer, 60° to 85°.

- M. arboreus* (tree). 12. Scarlet. W. Ind. 1714.
— *molle* (soft). 12. Scarlet. August. Mexico. 1780.
— *pilosus* (shaggy). 12. Red. October. Jamaica. 1780.

MAMMEEA. Mammee-tree. (The native name. Nat. ord., *Guttifers* [*Clusiaceæ*]. Linn., 13-*Polyandria* 1-*Monogynia*. Allied to *Marcinia*.)

Cultivated in the West Indies and South America for its fruit, called the Mammee Apple, or Wild Apricot, said to rival the Mangosteen. Stove evergreen trees, with white flowers. Cuttings of the half-ripened shoots in sand, under a bell-glass, and in bottom-heat; fibry, sandy loam, and a little dried leaf-mould. Winter temp., 50° to 55°; summer, 60° to 80°.

M. Africana (African). 60. July. Africa. 1823.
— *Americana* (American). 60. S. Amer. 1730.

MAMMILLA'RIA. A section of the *CACTUS*, which see.

Dwarf plants, composed of an assemblage of tubercles, somewhat resembling the teats of animals; these are generally terminated with bunches of hairy bristles, and between them the flowers appear. To grow them successfully, they should be fresh dressed, or repotted, in sandy loam and peat, with a fair portion of brick rubbish and cow-dung, old and dried, in April or May; afterwards kept in a temperature of from 75° to 90°, with plenty of atmospheric moisture, but little or no water given to the roots until they are rooting freely; then water may be given, and the stimulus to growth continued for two or three months, when moisture must be gradually withdrawn, even when the sun heat is allowed to remain in as great a degree to consolidate the tissues; and in the end of autumn the atmosphere must be gradually cooled, to enable the plants to stand dry, and in a dry atmosphere, and a temperature of from 45° to 50° during the winter. No shade will be required, unless just after potting, before fresh growth is made. Those who try them in windows may easily give them the above treatment by placing them in a close box or pit for two months in summer. Easily propagated by offsets and protuberances. Their greatest enemy is the red spider; plenty of syringing when growing in summer, and steaming with sulphur from a hot-water plate at other times, is the best remedy. Water somewhat liberally in summer, when in flower and growing; little or none must be given at other times.

MANDARIN ORANGE. *Citrus nobilis*.

MANDEVILLA. (Named after *H. J. Mandeville, Esq.*, our minister at Buenos Ayres. Nat. ord., *Dogbanes* [Apocynaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Echites*.)

Half-hardy evergreen climber. Generally by cuttings of the small, stiff side-shoots, when about three inches in length, taken off close to the old wood, and inserted in sand, under a bell-glass, and in a mild bottom-heat; peat and loam.

Winter temp., 40° to 48°; does little good as a pot-plant, but is splendid when planted out and allowed room in a greenhouse or conservatory, where fine climbers are prized.

M. suaveolens (sweet-scented). 20. White. June. Buenos Ayres. 1837.

MANE'ITIA. (Named after *X. Manetti*, an Italian botanist. Nat. ord., *Cinchonads* [Cinchonaceæ]. Linn., 4-*Tetrandria* 1-*Monogynia*. Allied to *Bouvardia*.)

Stove evergreen climbers. In a cool greenhouse they thrive only in summer; cuttings of the young shoots in sandy soil, under a bell-glass; such kinds as *coccinea* also by division of the fleshy, tubercled-like roots as growth is commencing; sandy peat and fibry loam. Winter temp., 45° to 50°; summer, 60° to 85°.

M. bicolor (two-coloured). 3. Scarlet, yellow. March. Rio Janeiro. 1843.

— *coccinea* (scarlet). 20. Scarlet. June. Guiana. 1806.

— *glabra* (smooth-surfaced). 5. Scarlet. August. Buenos Ayres.

— *Lygistum* (*Lygistum*). 20. Pink. March. Cuba. 1822.

— *splendens* (splendid). -Crimson. May. Caracas. 1840.

— *uniflora* (one-flowered). 3. Rose. November. St. Martha. 1844.

MANGIFERA. Mango-tree. (From *mango*, the Hindoo name of the fruit, and *fero*, to bear. Nat. ord., *Anacards* [Anacardiaceæ]. Linn., 23-*Polygamia* 1-*Monacia*.)

The Mango is the most esteemed fruit in India, having a grateful perfumed flavour. Stove evergreen trees, from the East Indies. Cuttings of the nearly ripe shoots in sand, under a glass, and in heat; peat and rich loam. Winter temp., 50° to 60°; summer, 60° to 90°.

M. foetida (fetid). 20. Red. 1824.

M. Indica (Indian). 20. White. July. 1690.

— *oppositifolia* (opposite-leaved). Yellow. June. 1823.

MAMESTRA. The larva of the Bright-line-brown-eye, or Pot-herb Moth (*Mamestra oleracea*), may be found early in December, beneath the surface of the earth, undergoing its transformations. This caterpillar is one of the most destructive of our garden enemies, feeding on the stem, just under the surface, of cabbages, but more especially brocoli, lettuces, and some other garden produce during the autumn. It is of a livid yellowish-brown colour, darkly striped on the back and sides, and with a white stripe nearly over the feet, which are light brown. It has black dots between the dark stripes. When young, and sometimes even when fully grown, it has a green ground colour. The moth comes forth in the summer. It measures one and a half inch across the fore-wings, which are nearly of a uniform chestnut

colour, but slightly clouded, and with a whitish irregular line near the outer edge, with an orange-coloured, kidney-shaped



spot near it, and a roundish dark spot near the centre. The under-wings are dusky-white, with the veins and a crescent-shaped spot in the centre all dusky.

Mamestra brassicae.—During the latter part of the evenings of May and June, a middle-sized, brown moth may be seen very often flying in our gardens, and visiting our beds of cabbages and lettuces, of which its caterpillars are most destructive. This is the Cabbage Moth (*Mamestra brassicae*, and *Noctua brassicae* of some naturalists). It measures about one inch and three quarters across the opened forewings, which are dusky-brown, clouded with darker shades, and marked with pairs of dark spots on their front edge; from these spots proceed the streaks which mark the wings across; there are various spots on the wings, some yellowish, and those in the middle surrounded with white, the kidney-shaped one with a whitish-grey crescent round it, and blackish beyond; the wings have a grey, yellowish-striped fringe, and near this, at the point farthest from the body, they have a row of black, triangular marks; the hindwings are light brownish-grey, with dark veins; the body and head are of various shades of blackish-grey, with a darker stripe of the same colour down the centre of the back. During the day this moth rests on the shady sides of the stems of trees, or the branches of hedge-row bushes, and even by the side of clods on the soil.

The caterpillar is green, variously marked with grey or black, with a dark stripe down the back, and a dirty-yellow one down each side; the spiracles (breathing-holes) are white, surrounded with black, and close above the yellow stripe. The caterpillar is found in July, August, and September, feeding upon the hearts of cabbages and lettuces. The only re-

medies are destroying the moths whenever seen, and hand-picking the caterpillars. The latter bury themselves in the ground, and remain in the pupa or chrysalis state all the winter.—*The Cottage Gardener*.

MANGLE'SIA. (Named after Captain Mangles, and his brother, Robert Mangles, Esq., of Sunning Hill, distinguished patrons of botany. Nat. ord., *Proteaceae* [Proteaceae]. Linn., 4-Tetrandria 1-Monogynia. Allied to Grevillea.)

Greenhouse evergreen shrubs, from Swan River. Cuttings of ripe shoots in sand, under a glass, and in heat, after the base of the cutting begins to swell; sandy loam and fibry peat. Winter temp., 35° to 45°.

M. glabra'ta (smooth). 5. White. May. 1838. — *purpu'rea* (purple). Purple. May. 1839. — *vesti'ta* (clothed). Purple. May.

MANGO GINGER. *Curcu'ma ama'da*.

MANGOSTEEN. *Garcinia*.

MANGO-TREE. See **MANGIFERA**.

MANGROVE. *Rhizo'phora*.

MANICA'RIA. (From *manica*, a glove, referring to the spathe, or rolling leaf which surrounds the flower-stem. Nat. ord., *Palms* [Palmaceae]. Linn., 21-Monœcia 9-Enneandria.)

Stove Palm. Seeds in a strong heat, in a hot-bed; rich, sandy loam. Winter temp., 55° to 65°; summer, 65° to 90°.

M. sacci'fera (bag-bearing). 30. S. America. 1823.

MA'NIHOT. (The Brazilian name of the root. Nat. ord., *Spurge-worts* [Euphorbiaceae]. Linn., 21-Monœcia 7-Heptandria. Allied to *Jatropha*.)

Stove evergreen shrubs, except *digita'ta*, which only requires a greenhouse; all the species placed under *Jani'pha* should be restored to this genus. For culture, see *JANI'PHA* and *JA'TROPHA*.

M. digita'ta (finger-leaved). Blue, green. July. Australia. 1820.

— *gra'cilis* (slender). Brown, green. July. Brazil. 1822.

— *sinua'ta* (wavy-edged). Brown. July. Brazil. 1824.

— *tenuifo'lia* (thin-leaved). Blue, brown. June. Brazil. 1822.

MANNA. *Altha'gi*.

MANNA ASH. *O'rnus rotundifo'lia*.

MANTI'SIA. Opera Girls. (Named after an insect, *Mantis*, to which the flowers have been compared. Nat. ord., *Ginger-worts* [Zingiberaceae]. Linn., 1-Monandria 1-Monogynia. Allied to *Ginger*.)

Stove herbaceous evergreens, from the East Indies. Division of the roots, as growth commences; sandy peat and fibry loam, well drained. Winter temp., 48° to 55°; summer, 60° to 85°.

M. saltato'ria (dancing). 1. Purple. July. 1808. — *sputu'la'ta* (spatulate). 1. Blue. June. 1823.

MANU'LEA. (From *manus*, the hand; from a faint resemblance in the divisions of the flower. Nat. ord., *Figworts* [*Scrophulariaceæ*]. Linn., 14. *Didynamia 2-Androspermia*. Allied to *Chenostoma*.)

Greenhouse evergreens, from the Cape of Good Hope. Several species are taken from this genus and added to *Lyperia*. Seeds, sown in spring, in a slight hotbed; cuttings of the young shoots, firm at their base, in sand, under a bell-glass, but without bottom-heat; sandy loam and peat, and leaf-mould. Winter temp., 35° to 48°.

M. cheira'nthus (wallflower). 1. Orange. August. 1795.

— *cordata* (heart-leaved). ½. Red. July. 1816.

— *rubra* (red). 1½. Red. June. 1790.

— *viscosa* (clammy). 1. Pink. September. 1774.

MANURES are either animal, vegetable, or mineral. They directly assist the growth of plants, by entering into their composition, by absorbing and retaining moisture from the atmosphere, by absorbing the gases of the atmosphere, and by stimulating the vascular system of the plants. Manures indirectly assist vegetation, by killing predatory vermin and weeds, by promoting the decomposition of stubborn organic remains in the soil, and by protecting plants from violent changes of temperature.

All these properties seldom, if ever, occur in one species of manure; but each is usually particularized by possessing one or more in a superior degree. That is the most generally applicable manure which is composed of matters essential to the growth of plants: the chief of these are carbon, hydrogen, and oxygen; therefore all animal and vegetable substances are excellent manures. It would evidently be of great benefit if every plant could be manured with the decaying parts of its own species. This rule might be so far followed as that the stems of potatoes, peas, &c., could be dug respectively into the compartments where those crops are intended to be grown in the following year; but such manure requires the addition of ammoniacal salts.

Some manures ameliorate a soil by absorbing moisture from the atmosphere. This property is, at least, as beneficial to ground that is aluminous as to that which is siliceous; for it is equally useless to either during periods of plentiful rain; but in the drought of summer, when moisture is much wanting to plants, it is beneficial to both; in very dry seasons it is even of greater importance to clayey than to light soils; for vegetation on the former suffers more from long-continued

drought than on the latter, the surface of the clayey soil becoming caked and impervious to air, the only grand source of compensatory moisture that is available to the languishing plants, and which is more open to those which grow on light, and, consequently, more pervious soils.

The following table of the comparative absorbent powers of many manures is extracted chiefly from *An Essay on the Use of Salt in Agriculture*, by Mr. Cuthbert Johnson:—

Horse-dung evaporated previously to dryness, at a temperature of 100°, absorbed during an exposure of three hours to air saturated with moisture at 62°, 145 parts; putrefied tanners' bark, under similar circumstances (66°), 145 parts; unputrefied tanners' bark, 115 parts; cow-dung, 130 parts; pig-dung, 120; sheep-dung, 81; pigeon-dung, 50; refuse marine salt (60°), 49½; soot (68°), 36; burnt clay, 29; the richest soil (in one hour), 23; coal-ashes, 14; lime (part carbonate), 11; crushed rock-salt, 10; gypsum, 9; chalk, 4.

The absorbing power of a manure is much influenced by the state in which it is presented to the atmosphere. In a finely-divided state mere capillary attraction assists it; hence the importance of keeping the soil frequently stirred by hoeing, &c. But a mere mass of cotton, by means of capillary attraction, will absorb moisture from the air; yet it parts with it at a very slight elevation of temperature. It is of importance, therefore, to ascertain which are the manures that not only absorb but retain moisture powerfully. The following results of our experiments throw some light on this point:—

Pig-dung evaporated to dryness at a temperature of 106°, and then moistened with six parts of water, required for being reduced to dryness again, at the above temperature, 135 minutes; horse-dung under similar circumstances, 90; common salt, 75; soot, 75; rich soil, 32; chalk, 29; poor soil (siliceous), 23; gypsum, 18.

These experiments point out a criterion by which we easily ascertain the comparative richness of any two given soils or manures: the most fertile will be most absorbent and retentive.

Some manures increase the growth and vigour of plants by stimulating their absorbent and assimilating organs. The

stimulating powers of excrementitious manures arise from the salts of ammonia they contain.

Sir H. Davy found vegetation assisted by solutions of muriate of ammonia (sal-ammoniac), carbonate of ammonia (volatile salt), and acetate of ammonia. Night soil, one of the most beneficial of manures, surpasses all others in the abundance of its ammoniacal constituents in the proportion of three to one. It may be observed, that the nearer any animal approaches to man in the nature of its food, the more fertilizing is the manure it affords. We have no doubt that a languishing plant—one, for example, that has been kept very long with its roots out of the earth, as an orange-tree recently imported from Italy—might be most rapidly recovered, if its stem and branches were steeped in a tepid, weak solution of carbonate of ammonia; and when planted, an uncorked phial of the solution were suspended to one of the branches, to impregnate the atmosphere slightly with its stimulating fumes.

Manures are also of benefit to plants by affording some of the gases of the atmosphere to their roots in a concentrated form. A soil, when first turned up by the spade or plough, has generally a red tint, of various intensity, which, by a few hours' exposure to the air, subsides into a grey or black hue. The first colour appears to arise from the oxide of iron which all soils contain, being in the state of the red or protoxide; by absorbing more oxygen during the exposure, it is converted into the black or peroxide. Hence one of the benefits of frequently stirring soils; the roots of incumbent plants abstract the extra dose of oxygen, and reconvert it to the protoxide. Coal-ashes, in common with all carbonaceous matters, have the power of strongly attracting oxygen. Every gardener may have observed how rapidly a bright spade of iron left foul with coal-ashes becomes covered with rust or red oxide.

Manures assist plants by destroying predatory vermin and weeds. This is not a property of animal and vegetable manures—they foster both those enemies of our crops. Salt and lime are very efficient destroyers of slugs, snails, grubs, &c.

Stable-manure, and all decomposing animal and vegetable substances, have a tendency to promote the decay of stubborn organic remains in the soil, on the

principle that putrescent substances hasten the process of putrefaction in other organic bodies with which they come in contact. Salt, in a small proportion, has been demonstrated by Sir J. Pringle to be gifted with a similar septic property; and that lime rapidly breaks down the texture of organized matters is well known.

There is no doubt that rich soils, or those abounding in animal and vegetable remains, are less liable to change in temperature with that of the incumbent atmosphere than those of a poorer constitution. This partly arises from the colour of the soils. Some manures, as salt, protect plants from suffering by sudden reductions of temperature, by entering into their system, stimulating and rendering them more vigorous, impregnating their sap, and, consequently, rendering it less liable to be congealed.

MAPLE. *A'cer*.

MARANHAO NUTS. *Bertholletia*.

MARA'NTA. Arrow-root. (Named after *B. Maranti*, an Italian botanist. Nat. ord., *Marants* [Marantaceæ]. Linn., 1-Monandria 1-Monogynia. Allied to *Canna*.)

A kind of arrow-root is obtained from the rhizomes, or fleshy roots, of some of the species. Stove evergreens; division of the roots in spring; rich, sandy loam, with nodules of peat. Winter temp., 50° to 60°; summer, 60° to 85°.

M. angustifolia (narrow-leaved). 2. Red. July. W. Ind. 1820.

— *bi'color* (two-coloured). 3. White. July. Brazil. 1823.

— — *mi'nor* (smaller). 4. White. April. S. Amer. 1828.

— *lined'la* (white-lined-leaved). 1. 1848.

— — *ro'sea* (rosy-lined-leaved). 1. 1848.

— *Malaccensis* (Malacca). 2. Green, white. December. E. Ind. 1820.

— *obli'qua* (twisted-leaved). 2. Red. July. Guiana. 1803.

— *Tou'chat* (Touchat). 8. Red. July. E. Ind. 1819.

— *variegua'ta* (variegated). 1. July. S. Amer. 1825.

MARA'TTIA. (Named after *J. F. Maratti*, an Italian botanist. Nat. ord., *Danæaworts* [Danæaceæ]. Linn., 24-Cryptogamia 1-Filices. Allied to Ferns.)

Stove evergreens. Division in spring, or by spore-like seeds; peat and loam. Winter temp., 55° to 60°; summer, 60° to 85°.

M. ala'ta (winged). 1½. Brown. August. Jamaica. 1793.

— *cicutæ'folia* (cicuta-leaved). Brown, yellow. Brazil. 1843.

— *e'legans* (elegant). 8. Brown, yellow. Norfolk Island.

— *la'vis* (smooth). 2. Brown, yellow. Jamaica. 1793.

MARGINS of streams and other waters must always accord with the pleasure-grounds in which they are placed. Art, therefore, must imitate each in its proper place, not always by a studious picturesque arrangement of the marginal accompaniments in each case, but by excavating the groundwork, planting the trees and shrubs, and leaving the rest to the motion of the waves of the water. After the effects of one winter, stones or gravel may be deposited in spots suitable for stony or gravelly shores.

MARGYRICA RPUS. (From *margaron*, a pearl, and *karpas*, a seed-vessel; referring to the pearly succulent fruit. Nat. ord., *Sanguisorbs* [*Sanguisorbaceæ*]. Linn., 2 *Diandria* 1-*Monogynia*. Allied to *Cliffortia*.)

Stove evergreen shrub. Cuttings of half-ripened shoots in April or May, in sand, under a bell-glass, and in bottom-heat; sandy peat, with pieces of charcoal. Winter temp., 48° to 55°; summer, 60° to 85°.

M. setosus (bristly). 2. Green. Peru. 1829.

MARIA'LIA. See TOVO'MITA.

MARIA'NTHUS. (From *Marian*, Mary, and *anthos*, a flower; dedicated to the Virgin Mary. Nat. ord., *Pittosporads* [*Pittosporaceæ*]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Sollya*.)

Greenhouse deciduous climbers. Cuttings of young side-shoots in sand, under a bell-glass, in May; sandy loam, fibry peat, with potsherds and charcoal, to keep the soil rather open. Winter temp., 40° to 45°.

M. cæruleo-punctatus (orange-blue-spotted).

4. Blue. April. Swan River. 1840.

— *fruticosus* (shrubby). Swan River. 1841.

MA'RICA. (From *maraino*, to flag; referring to the ephemeral nature of the flowers, which last hardly a day. Nat. ord., *Irids* [*Iridaceæ*]. Linn., 3-*Triandria* 1-*Monogynia*. Allied to *Iris*.)

Marica has been long known, therefore we retain it; but the true name is *Cipura*. Herbaceous evergreens. By seed, sown in a slight hot-bed in spring; by offsets, in abundance, though seed ripens very freely; sandy loam, peat, and leaf-mould; they require the protection of a greenhouse or a cold pit in winter.

M. cærulea (blue). 2. Blue. May. Brazil. 1818.

— *celastis* (sky-blue). 3. Blue. Brazil. 1829.

— *gracilis* (slender). 2. Yellow, blue. August. Brazil. 1830.

— *longifolia* (long-leaved). Striped. August. Brazil. 1830.

— *Martinicensis* (Martinico). 2. Yellow. Martinico. 1782.

— *Northiana* (North's). 4. Yellow. June. Brazil. 1789.

— *paludosa* (marsh). 1. White. July. Guiana. 1792.

— *Sabini* (Captain Sabine's). 2. Yellow. August. St. Thomas. 1822.

MARIGOLD. *Cale'ndula officinalis*.

Varieties.—Single, Common double, Largest very double, Double lemon-coloured, Great Childing, Small Childing. The single-flowered, and those which have the darkest orange colour, possess the most flavour.

Soil.—Light, dry, poor, and unshaded. In rich ground they grow larger, but lose much of their flavour.

Sow any time from the close of February until June; or in autumn, during September. If left to themselves, they multiply from the self-sown seed. Sow in drills, ten inches apart; the plants to be left where raised, being thinned to ten or twelve inches asunder; but when the seedlings are two or three inches in height, they may be removed into rows at similar distances as above. Water must be given moderately every other day in dry weather until established.

Gathering.—The flowers, which the spring-raised plants will produce in the June of the same year, but those of autumn not until that of the following one, will be fit to gather for keeping in July, when they are fully expanded, as well as for use when required. Before storing, they must be dried perfectly.

MARIGOLD (GREAT CAPE). *Cale'ndula hybrida*.

MARI'LA. (From *marile*, live embers, or sparks; referring to pellucid dots on the leaves, or yellow fringe round the seed-pod. Nat. ord., *Theads* [*Ternströmiaceæ*]. Linn., 13-*Polyandria* 5-*Pentagynia*. Allied to *Mahurea*.)

Stove evergreen shrub. Cuttings of shoots, when short, and getting firm at their base; sandy peat and loam, well-drained, and open. Winter temp., 50° to 55°; summer, 60° to 80°.

M. racemosa (racemed). 12. Yellow, green.

August. W. Ind. 1827.

MARJORAM. (*Ori'ganum*.) *O. majorana*, Sweet or Summer Marjoram. *O. heracleoticum*, Winter Marjoram. *O. onites*, Common or Pot Marjoram.

Soil.—Light, dry, and moderately fertile. The situation cannot be too open.

Propagation.—The Sweet Marjoram is propagated solely by seeds; the others by seed, as well as by parting their roots, and slips of their branches. Sow from the end of February, if open weather, to the commencement of June; but the early part of April is best. Portions of the rooted plants, slips, &c., may be planted from February until May, and during September and October.

Sow in drills, six inches apart, the seed being buried not more than a quarter of an inch deep. When the seedlings are two or three inches high, thin to six inches, and those removed may be pricked in rows at a similar distance. Those of the annual species (*O. majorana*) are to remain; but those of the perennials, to be finally removed during September, water being given at every removal, and until the plants are established.

Plant slips, &c., in rows ten or twelve inches apart, where they are to remain; they must be watered moderately every evening, and shaded during the day until they have taken root. In October the decayed parts of the perennials are cut away, and some soil from the alleys scattered over the bed about half-an-inch in depth, the surface of the earth between the stools being previously stirred gently. The tops and leaves of all the species are gathered when green, in summer and autumn, for use, in soups, &c.; and a store of the branches are cut and dried in July or August, just before the flowers open for winter's supply.

Seed.—If a plant or two are left ungathered from of the Pot Marjoram, the seed ripens in the course of the autumn. But the others seldom ripen their seed in this country; consequently it is usually obtained from the south of France or Italy.

Forcing.—When the green tops are much in request, a small quantity of seed of the Summer Marjoram is sown in January or February, in a moderate hotbed.

MARKET-GARDENER, one who grows garden produce for sale.

MARL is a compound of chalk (carbonate of lime) with either siliceous sand or alumina. In the first instance it is a siliceous marl, best applied to heavy soils; and in the latter a clayey marl, adapted for light lands. Slaty and shell-marls are varieties of the siliceous. The relative proportions of the constituents vary indefinitely, the chalk amounting to from 15 to 75 per cent. The quantity applied per acre must also vary greatly, according to the object to be attained. To render a light soil more tenacious, 100 tons per acre of clayey marl are not too much; neither is the same quantity of siliceous marl an excess, if applied to a heavy soil to render it more friable.

MARKING FRUIT. *Anacardium*.

MA'RLA. (From *marlija*, the Indian name. Nat. ord., *Alangiads* [*Alangiaceæ*]. Linn., 8-*Octandria* 1-*Monogynia*. Allied to *Nyssæ*.)

Greenhouse evergreen shrub. Cuttings of shoots, or rather, short, stubby side-shoots, taken off with a heel, in sand, under glass; peat and loam. Winter temp., 40° to 48°.

M. Begoniaefolia (*Begonia*-leaved). 4. Yellow. China.

MARRU'BUM. Horehound. (From the Hebrew *marrob*, bitter juice. Nat. ord., *Labiates* [*Lamiaceæ*]. Linn., 14-*Didynamia* 1-*Gymnospermia*.)

Hardy herbaceous perennials. Division of the roots in spring; by slips, in a shady place, or shaded for a time, and by seeds; common garden-soil.

M. alyssum (*alyssum*). 1½. Purple. July. Spain. 1597.

— *candidissimum* (whitest). 2. White. July. Levant. 1732.

— *catariaefolium* (catmint-leaved). 1½. Purple. July. Levant. 1819.

— *leonuroides* (*leonurus*-like). 1½. Purple. July. Caucasus. 1819.

— *propinquum* (related). White. June. 1836.

— *vulgaris* (common). 2. White. July. Britain.

— *lanatum* (woolly). White. August. Britain.

MARSDENIA. (Named after *W. Marsden*, author of a History of Sumatra. Nat. ord., *Asclepiads* [*Asclepiadaceæ*]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Pergularia*.)

Stove evergreen shrubs; *flavescens* is a pretty climber. Cuttings in sand, under a bell-glass, in April or May, and a very slight bottom-heat; sandy loam, with a little leaf-mould or peat. Winter temp., 45° to 55°; summer, 60° to 75°.

M. erecta (upright). 2. White. July. Syria. 1697.
— *flavescens* (yellowish). 20. Yellowish. August. N. Holland. 1830.

— *maculata* (spotted-leaved). 20. Green, purple. June. New Grenada. 1834.

— *suaveolens* (sweet-scented). 2. White. July. N. Holland. 1816.

— *tenacissima* (toughest). Yellow. June. E. Ind. 1806.

MARSCHELLIA. (Named after *H. Marschall*, a botanical author. Nat. ord., *Compositæ* [*Asteraceæ*]. Linn., 19-*Syn-genesia* 1-*Æqualis*.)

Half-hardy herbaceous plants, with purplish flowers, from Carolina. Division of the plants in spring, or slips of the shoots in sandy soil, under a hand-light, in April and May; common, sandy loam; *angustifolia* likes the addition of peat; they require a dry, elevated place in winter, and the protection of an evergreen bough, or a cold, dry pit, with plenty of air.

M. angustifolia (narrow-leaved). 2. July. 1800.
— *caspitosa* (tufted). 1. Purple, white. July. Texas. 1837.

— *lanceolata* (spear-head-leaved). 1½. June. 1812.
— *latifolia* (broad-leaved). 1½. June. 1806.

MARSH CINQUEFOIL. *Comarum*.

MARSH MALLOW. *Althea*.

MARSH MARIGOLD. *Ca'ltha*.

MARTAGON. *L'ilium ma'rtagon*.

MARTY'NIA. (Named after *Dr. Martyn*, once professor of botany at Cambridge. Nat. ord., *Pedaliads* [Pedaliaceæ]. Linn., 14-*Didymia* 2-Angiospermia. Allied to *Pedalia*.)

Greenhouse annuals. Seeds, sown in a strong but sweet bottom-heat, in March; plants pricked off as soon as they can be handled, kept close and warm, and, when increasing in size, shifted and hardened off by degrees, to enable them to bloom in a cool stove or a warm greenhouse.

M. Craniola'ria (Craniolarian). White-spotted. July. S. Amer. 1830.

— *dia'ndra* (two-anthered). 1½. Red. July. New Spain. 1731.

— *fra'grans* (fragrant). 2. Crimson. June. Mexico. 1840.

— *longifo'ra* (long-flowered). 2. Pale purple. July. Cape of Good Hope. 1781.

— *lu'tea* (yellow). 1½. Yellow. July. Brazil. 1825.

— *probosc'i'dea* (proboscis-like). ¾. Light blue. July. America. 1738.

MARVEL OF PERU. *Mira'bilis*.

MASDEVA'LLIA. (Named after *J. Masdevall*, a Spanish botanist. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-*Gynandria* 1-Monandria. Allied to *Octomeria*.)

Stove orchids. Division in spring; peat, sphagnum, rotten wood, and charcoal; plants elevated above the pots or baskets. Winter temp., 55° to 60°; summer, 60° to 90°.

M. cocci'nea (scarlet). Scarlet. April. Pamplona.

— *fenestra'ta* (windowed). ¾. Brownish-red. May. Brazil. 1838.

— *floribu'nda* (many-flowered). ¾. Brownish-yellow. November. Brazil. 1843.

— *infra'cta* (broken). Whitish-yellow. April. Brazil. 1835.

— *triangula'ris* (three-angled). Yellow, purple. June. Merida.

— *tubulo'sa* (pipe-like). White. July. Merida.

MASSO'NIA. (Named after *F. Masson*, a botanical traveller in South Africa. Nat. ord., *Lilyworts* [Liliaceæ]. Linn., 6-*Hexandria* 1-Monogynia. Allied to *Lachenalia*.)

Very small bulbs, with white flowers, from the Cape of Good Hope. Seeds or offsets, in spring; sandy loam, and a little peat or leaf-mould; grown in a pit, or in a warm border, the bulbs being taken up when ripened, and kept in bags or drawers; if in pots, kept dry until vegetation commences.

M. can'dida (white). ¾. April.

— *echina'ta* (prickly-leaved). ¾. May. 1790.

— *grandifl'ora* (large-flowered). ¾. October. 1725.

— *latifo'lia* (broad-leaved). ¾. March. 1775.

— *longifo'lia* (long-leaved). ¾. March.

— *scu'bra* (rough). ¾. February. 1790.

— *undula'ta* (wavy-leaved). ¾. April. 1791.

— *viola'cea* (violet). ¾. May. 1800.

MAT. See BASS.

MATHI'OLA. Stock Gilliflower. (Named after *P. Mathioli*, an Italian botanist. Nat. ord., *Crucifers* [Brassicææ]. Linn., 15-*Tetradynamia*.)

The annuals, such as the Ten-week Stocks, may be sown from March to May for summer decoration, and in August and September, to stand over the winter for spring early flowering. For the latter purpose, none beat the Intermediate, Queens, Bromptons, and other biennials. Sow in June, plant in sheltered places, and in pots, to be kept in cold pits, and turned out early in spring. Seeds are recommended to be sowed from the neighbourhood of double flowers, which we consider of no importance. The only true theory to get double flowers is to leave few seeds on a plant, and give it very high cultivation, and as much sunshine as possible. For fine flowering, all these prefer rich, light soil. The best of them may be successfully preserved by cuttings under a hand-light, and then kept in a cold pit in winter. The shrubby greenhouse kinds are easily propagated by cuttings, and delight in a rich, sandy soil.

HARDY ANNUALS.

M. acutis (stemless). ¾. Red. June. Egypt. 1823.

— *a'nua* (annual. *Ten-week Stock*). 2. Various. August. South Europe. 1731.

— *alba* (white). 1½. White. July. South Europe.

— *flo're-pl'e'no* (double-flowered). 1½. Red. July.

— *Græ'ca* (Grecian. *Wallflower-leaved*). 2. White. August. South Europe.

— *li'vida* (livid). Livid, purple. July. Egypt. 1820.

— *longipe'tala* (long-petaled). 1. Red, yellow. June. Bagdad. 1818.

— *parvifo'ra* (small-flowered). ¾. Purple. July. Morocco. 1799.

— *tricuspidatu* (three-pointed-leaved). ¾. Purple. July. Barbary. 1739.

HARDY BIENNIALS.

M. coronopifo'lia (buckhorn-leaved). 1. Purple. June. Sicily. 1819.

— *fenestra'tis* (window). 1. Purple. July. Crete. 1759.

— *Si'cula* (Sicilian). 1½. Lilac. July. Sicily. 1835.

— *simplicica'ulis* (single-stemmed). 2. Purple. July.

— *alba* (white). 2. White. July.

— *sinua'ta* (scollop-leaved). 1. Dingy red. July. England.

— *Tata'rica* (Tartarian). 1. Red, yellow. July. Tartary. 1820.

GREENHOUSE EVERGREENS.

M. glabra'ta (smooth). 2. White. August.

— *flo're-pl'e'no* (double-flowered). 2. White, purple. August.

— *purpu'rea* (purple). 2. Purple. August.

— *inea'na* (hoary. *Queen's Stock*). 1. Purple. August. England.

— *alba* (white. *branching*). 1. August.

— *cocci'nea* (scarlet. *Brompton Stock*). 1. Scarlet. August. England.

— *mult'plex* (double). 1. Variegated. August. England.

— *Madere'nsis* (Madeira). Violet. May.

— *odorat'issima* (sweetest-scented). 2. Livid. June. Persia. 1795.

— *fra'grans* (fragrant). 2. Livid. June. Crimen. 1823.

— *tortuo'sa* (twisted). Purple. July. Cape of Good Hope. 1816.

— *tri'stis* (dark-flowered). 1½. Livid. June. South Europe. 1768.

MATO'NIA. (Named after the late *Dr. Maton*. Nat. ord., *Ferns* [Polypodiaceæ]. Linn., 24-*Cryptogamia* 1-Filices.)

Stove Fern. See FERNS.

M. pectinata (comb-like-frond). Yellow. May. Mount Ophir. 1839.

MAURANDYA. (Named after Professor Maurandy, of Carthagea. Nat. ord., *Fig-worts* [Scrophulariaceæ]. Linn., 14-*Didynamia* 2-*Angiospermia*.)

Greenhouse evergreen twiners, from Mexico. Seeds sown in a slight hotbed, in spring; and cuttings of shoots in sandy soil, in spring or autumn; rich, sandy loam, with a little peat or leaf-mould; will flourish in a cool greenhouse, and in summer on wires, and fences, and pillars in the open air.

M. antirrhiniflora (snapdragon-flowered). 10. Purple. July. 1844.

— *Barclaya'na* (Barclay's). 10. Blue, white. July. 1825.

— *alba* (white-flowered). 10. White. Year. 1842.

— *semperflorens* (ever-flowering). 10. Purple. July. 1796.

MAURIA. (Named after A. Mauri, an Italian botanist. Nat. ord., *Anacards* or *Terebinths* [Anacardiaceæ]. Linn., 21-*Monæcia* 7-*Ocandria*. Allied to *Duvaua*.)

Stove evergreen trees, with pinkish flowers, from Peru. Cuttings of ripe shoots in heat, under a hand-glass; common loam and a little peat; usual stove treatment.

M. heterophylla (variously-leaved). 20. 1822.

— *simplicifolia* (plain-leaved). 20. 1822.

MAURITIA. (Named after Prince Maurice, of Nassau. Nat. ord., *Palms* [Palma-cæ]. Linn., 22-*Diæcia* 6-*Hexandria*.)

Stove Palms. Seeds in a hotbed, in spring; rich, fibry, sandy loam. Winter temp., 55°; summer, 60° to 90°.

M. armata (armed). 40. Brazil. 1824.

— *flexuosa* (zigzag-spiked). 40. White, green. Surinam. 1816.

— *vinifera* (wine-bearing). 40. Maranham. 1823.

MAXILLA'RIA. (From *maxilla*, the jaws of an insect; referring to a resemblance of the columns and labellum. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-*Gynandria* 1-*Monandria*.)

Stove orchids. Divisions of the plant in spring; fastened on wood covered with sphagnum, or raised in baskets filled with sphagnum, old wood, turfy peat, and charcoal. Winter temp., 55° to 65°; summer, 60° to 90°. Dry in winter; moist when growing.

M. alba (white). White. W. Ind.

— *aromatica* (aromatic). 1. Yellow. May. Mexico. 1825.

— *atro-purpurea* (dark purple). 1. Dark purple. July. Mexico. 1828.

— *atro-rubens* (dark red). Dark red. July.

— *aureo-fulva* (golden brown). 1. Golden brown. June. S. Amer. 1836.

— *barbata* (bearded). Yellow. May. Mexico. 1839.

— *Barringtonia* (Barrington's). 1½. Yellow. brown. April. Jamaica. 1790.

— *caudida* (whitened). White. April. Brazil. 1840.

— *citrina* (citron-coloured). Yellow. May. Mexico. 1840.

— *conca'va* (concave). June. Guatemala. 1844.

— *crassifolia* (thick-leaved). Brazil. 1836.

M. cristata (crested-tipped). ½. White, purple. July. Trinidad.

— *crocea* (saffron). ½. Saffron. Rio Janeiro.

— *cuneata* (wedge-shaped). White, pink. 1841.

— *Deppii* (Deppe's). Yellow, green. June.

Xalapa. 1828.

— *galeata* (helmeted). Orange. September. Xalapa. 1828.

— *graminea* (grass-leaved). Yellow, red. Demerara.

— *grandiflora* (large-flowered). White, yellow. August. Merida.

— *Harrisonia* (Mrs. Harrison's). 1½. Yellow, red. Brazil.

— *alba* (white). White. April. Brazil. 1843.

— *grandiflora* (large-flowered). April. Rio Janeiro.

— *jugo'sa* (ridged). Crimson, yellow. Brazil. 1842.

— *leuco-alba* (yellowish-white). Yellow, white. June. Merida.

— *Lyonii* (Mr. Lyon's). Purple, brown. Mexico. 1845.

— *Macleanii* (Mac Leay's). White, maroon. Mexico. 1839.

— *marginata* (bordered). Dark yellow. June. Merida.

— *meleagris* (Guinea-fowl). Yellow, brown. May. S. Amer.

— *ochroleuca* (pale yellow). ¾. Yellowish. July. Rio Janeiro.

— *ornithoglossa* (bird's-tongue). White. Mexico. 1842.

— *pullidiflora* (pale-flowered). 1. Yellow. St. Vincent. 1826.

— *palmifolia* (palm-leaved). White. Jamaica.

— *Parke'ri* (Parker's). ¾. Buff, white. April. Demerara. 1826.

— *picta* (painted). ¾. Orange, red. December. Brazil.

— *ma'jor* (larger). Yellow, white. December. Brazil. 1837.

— *platanthæ'va* (flat-anthered). Green, white. July. Brazil. 1835.

— *psittacina* (parrot-like). 1. Red, yellow. October. Mexico. 1835.

— *punctata* (spotted). ¾. White-spotted. October.

— *alba* (white). White-spotted. October. Brazil. 1838.

— *purpurea* (purple). Purple-spotted. October. Brazil. 1839.

— *racemosa* (racemed). ¾. Buff, yellow. June. Rio Janeiro. 1826.

— *Rollissonii* (Rollisson's). ¾. Yellow. August. Brazil. 1836.

— *Stapelioides* (Stapelia like). ¾. Orange. June. Brazil. 1837.

— *Steelii* (Steel's). 2. Yellow-spotted. July. Demerara. 1836.

— *temuifolia* (slender-leaved). 1. Purple, yellow. June. Vera Cruz. 1837.

— *tetrage'na* (four-angled). Purple, green, white. July. Brazil. 1827.

— *triangularis* (three-angled). Brown, crimson. Guatemala.

— *viridis* (green). ¾. Green. May. Brazil.

— *vitellina* (yolk-of-egg-coloured). ¾. Orange. June. Brazil. 1837.

— *Warreana* (Warre's). 2. White, purple. August. Brazil. 1829.

— *zanthina* (yellow). Yellow. Organ Mountains.

MAXIMILIA'NA. (Named after Prince Maximilian. Nat. ord., *Palms* [Palma-cæ]. Linn., 23-*Polygamia* 1-*Monæcia*. Allied to *Cocos*.)

Stove Palms. Seeds, in a hotbed; rich, sandy loam. Winter temp., 55° to 60°; summer, 60° to 85°.

M. regia (royal). 60. Brazil. 1825.

MAY. *Cratægus oxyca'ntha*.

MAY-APPLE. *Podophyllum peltatum*.

MAYTE'NUS. (From *maiten*, the Chilian name. Nat. ord., *Spindle-trees* [Celastraceæ]. Linn., 23. *Polygamia* 2-*Diæcia*. Allied to *Celastrus*.)

Greenhouse evergreen shrubs. Cuttings of half-ripened shoots in sand, under a glass, in May; sandy peat and fibry loam. Winter temp., 35° to 45°.

M. boaria (boaria). 10. White. Chili. 1822.

— *Chile'nsis* (Chilian). 12. Green, yellow. May. Chili. 1829.

— *octago'nus* (eight-angle-stemmed). 6. White. October. Peru. 1786.

M. verticillat'us (whorled). 6. White. October. Peru. 1821.

MAZE. See LABYRINTH.

MA'ZUS. (From *mazos*, a teat; referring to the tubercles in the opening or mouth of the flower. Nat. ord., *Fig-worts* [Scrophulariaceæ]. Linn., 14. *Didynamia* 2-*Angiospermia*. Allied to *Dodartia*.)

Hardy annuals. Seeds in hotbed, in March; seedlings hardened off, and transferred to the open ground in May.

M. puni'tio (dwarf). 3. Pale purple. June. Van Diemen's Land. 1823.

— *rugo'sus* (wrinkly). 3. Yellow. July. China. 1780.

MEADOW-RUE. *Thali'ctrum*.

MEADOW-SAFFRON. *Col'chicum*.

MEADOW-SWEET. *Spira'a ulma'ria*.

MEASURES.

CORN MEASURE.

4 Gills	1 Pint . containing . . .	34 $\frac{3}{4}$ Cubic Inches.
2 Pints	1 Quart	69 $\frac{3}{4}$ " "
4 Quarts	1 Gallon	277 $\frac{1}{4}$ " "
2 Gallons	1 Peck	554 $\frac{1}{2}$ " "
4 Pecks	1 Bushel	2218 $\frac{3}{4}$ " "
4 Bushels	1 Sack	5 $\frac{1}{2}$ Cubic Feet
8 Bushels	1 Quarter	10 $\frac{1}{4}$ " "
5 Quarters	1 Load	51 $\frac{1}{2}$ " "

TIMBER MEASURE.

A load of timber, unhewn, is 40 cub. ft.		A load of 2 $\frac{1}{4}$ inch plank 240 square feet.	
squared, 50 "		3 "	200 "
1 inch plank 600 sq. ft.		3 $\frac{1}{4}$ "	170 "
1 $\frac{1}{2}$ " 400 "		4 "	150 "
2 " 300 "			

LAND MEASURE.

The *English* statute acre contains 4840 square yards; the *Scotch*, 5760; the *Irish*, 7840; the *Devonshire*, customary, 4000; the *Cornish*, 5760; the *Lancashire*, 7840; the *Cheshire* and *Staffordshire*, 10,240; the *Wiltshire* tenantry, 3630. The *French* arpent is an English acre, and three-fourths of a rood. The *Strasburg* acre is nearly half an English acre; the *Prussian* morgen is not quite three-fourths of an acre.

LONG MEASURE.

12 Inches	1 Foot.	40 Poles	1 Furlong.
3 Feet	1 Yard.	8 Furlongs	1 Mile.
6 Feet	1 Fathom.	3 Miles	1 League.
5 $\frac{1}{2}$ Yards	1 Pole.	69 $\frac{1}{2}$ Miles	1 Degree.

SQUARE MEASURE.

Inches.	Feet.	Yards.	Poles, Rods, or Perches.	Roods.	Acre.
144	1				
1,296	9	1			
39,204	272 $\frac{1}{4}$	30 $\frac{1}{4}$	1		
1,568,160	10,890	1210	40	1	
6,272,640	43,560	4840	160	4	1
30 Acres are 1 Yard of Land.			100 Acres are 1 Hide of Land.		
640 Acres are 1 Square Mile.					

CUBIC MEASURE.

1728	Cubic Inches make	1 Cubic Foot.
27	" Feet	1 " Yard.
40	" " of Rough Timber	} 1 Load.
50	" " of Hewn do.	
108	" "	1 Stack of Wood.
128	" "	1 Cord.

HEAPED MEASURES.

Our market-gardeners, and retailers of fruit, potatoes, &c., generally vend their commodities as if the Act of Parliament, 5 and 6 Will. IV. c. 63, did not exist. By this statute selling by heaped measure is forbidden under a penalty of not more than 40s. for every such sale. Section 8 provides that, as some articles heretofore sold by heaped measure are incapable of being stricken, and may not inconveniently be sold by weight, it is enacted, that all such articles may henceforth be sold by a bushel-measure, corresponding in shape with the bushel prescribed by the 5 Geo. IV. c. 74, for the

sale of heaped measure, or by any multiple or aliquot part thereof, filled in all parts as nearly to the level of the brim as the size and shape of the articles will admit; but nothing herein shall prevent the sale by weight of any article heretofore sold by heaped measure. The 5 Geo. IV. c. 74, thus referred to, enacts, by section 7, that for potatoes, fruit, &c., the bushel shall be made round, with a plain and even bottom, be nineteen inches and a half from outside to outside, and capable of containing 80lb. weight of water.

WOOD FUEL.

English Measure.—Wood-fuel is asized into shids, billets, faggots, fall-wood, and cord-wood. A shid is of fall-wood and cord-wood.

A shid is to be four feet long, and according as they are marked and notched, their proportion must be in the girth—viz., if they have but one notch, they must be sixteen inches in the girth; if two notches, twenty-three inches; if three notches, twenty-eight inches; if four notches, thirty-three inches; and if five notches, thirty-eight inches about.

Billets are to be three feet long, of which there should be three sorts, namely, a single cask, and a cask of two. The first is seven inches, the second ten

inches, and the third fourteen inches about. They are sold by the hundred of five score.

Faggots are to be three feet long, and, at the band, of twenty-four inches about, besides the knot; of such faggots fifty go to the load.

Bavins and *Spray-wood* are sold by the hundred, which are accounted a load. *Cord-wood* is the bigger sort of fire-wood; and it is measured by a cord or line, whereof there are two measures—that of fourteen feet in length, three feet in breadth, and three feet in height; the other is eight feet in length, four feet in height, and four feet in breadth.

MEASURE OF WOOD.

1000 Billets of Wood	=	1 Cord.
10 Cwt. of Wood	=	1 Cord.
1 Cord of Wood	=	$\frac{1}{2}$ Chaldron of Coals.
100 lbs. of Wood	=	1 Quintal of Wood.

MECONOPSIS. (From *mekon*, the poppy, and *opsis*, like. Nat. ord., *Poppyworts* [Papaveraceæ]. Linn., 13-Polyandria 1-Monogynia.)

Hardy herbaceous perennials. Divisions of the plant in spring, and seeds (which ripen freely), at the same time; rich, sandy soil.

- M. Ca'mbrica* (Welsh). 1. Yellow. June. England.
— crassifolia (thick-leaved). 1. Orange, red. California. 1833.
— diphylia (two-leaved). $\frac{3}{4}$. Yellow. June. Western United States. 1854.

M. heterophylla (various-leaved). 1. Orange, red. California. 1833.
— Wall'chii (Dr. Wallich's). 2 $\frac{1}{2}$. Blue. June. Sikkim Himalaya.

MEDEOLA. (Named after *Medea*, the sorceress. Nat. ord., *Parids* [Trilliaceæ]. Linn., 6-Hexandria 3-Trigynia. Allied to *Trillium*.)

- Hardy herbaceous. Division of the plant in spring; rich, sandy soil.
M. Virginica (Virginian). $\frac{3}{4}$. Yellow. June. Virginia. 1759.

MEDIAN APPLE, OR CITRON. *Citrus Me'dica*.

MEDICA'GO. Medick. (From *medike*, a name from Dioscorides. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 17-*Diadelphia* 4-*Decandria*. Allied to *Trifolium*.)

Hardy, and all yellow-flowered, except where otherwise mentioned. Annuals, by seeds, in open border, in April; perennials, by seeds, division of the plant, and slips under a hand-light; shrubs, by cuttings of young shoots under a hand-light.

HARDY EVERGREEN SHRUB.

M. arbo'rea (tree. Moon-trefoil). 8. May. 1596.

HARDY HERBACEOUS PERENNIALS.

- M. Carstie'nsis* (Carst.). 1. July. Carinthia. 1789.
- *creta'ca* (chalky). 4. July. Tauria. 1805.
- *falca'ta* (sickle-podded). 2. July. England.
- *glomerat'a* (clustered). 1. June. Italy. 1817.
- *glutino'sa* (sticky). 1. June. Caucasus. 1817.
- *marina* (sea). 1. July. South Europe. 1596.
- *procumbens* (trailing). 1. June. South Europe. 1818.
- *prostrat'a* (lying-down). 2. June. Hungary. 1793.
- *sativa* (cultivated). 2. Violet. June. England.
- — *versicolor* (various-coloured). 2. Yellow, blue. June. Britain.
- *suffrutico'sa* (sub-shrubby). 2. Violet, yellow. June. Pyrenees. 1820.

HARDY ANNUALS.

- M. aculeat'a* (prickly). 1. July. 1602.
- *brachyca'rpa* (short-podded). 2. June. Trifliz. 1823.
- *cancellat'a* (latticed). 1. July. Caucasus. 1818.
- *Catalo'nica* (Catalonian). 2. July. Catalonia. 1820.
- *ciliaris* (hair-fringed). 1. July. South Europe. 1686.
- *coronat'a* (crowned). 1. June. South Europe. 1660.
- *discifo'rmitis* (disc-formed). 2. July. South France. 1822.
- *echi'nus* (hedgehog). 2. July. South France. 1818.
- *flezu'o'sa* (zigzag). 2. July. Italy. 1819.
- *Gerard'i* (Gerard's). 1. July. South Europe. 1816.
- *Hornemannia'na* (Hornemann's). 2. June. Morocco. 1818.
- *intert'exta* (interwoven). 1. July. South Europe. 1629.
- *lacinia'ta* (jagged-leaved). 2. July. South Europe. 1683.
- *la'vis* (smooth). 2. July. South Europe. 1816.
- *lappa'cea* (burdock-like). 2. July. Montpellier. 1810.
- *lupuli'na* (hop-like). 1. June. Britain.
- *polystach'ya* (many-spined). Switzerland.
- — *Willdenow'i* (Willdenow's). 2. Europe.
- *maculat'a* (spotted). 1. May. England.
- *marginat'a* (bordered). 1. July. South Europe. 1816.
- *mnio'ca'rpa* (moss-fruited). 2. July. Switzerland. 1816.
- *mollis'sima* (softest). 2. July. Spain. 1818.
- *muric'ata* (point-covered). 1. June. England.
- *orbicul'ris* (round-podded). 1. July. South Europe. 1688.
- *præ'cox* (early). 2. July. Provence. 1820.
- *re'cta* (upright). 1. July. Barbary. 1810.
- *rupe'stris* (rock). 1. June. Tauria. 1820.

M. Sibi'rica (Siberian). 1. June. Siberia. 1817.

— *sphæroca'rpa* (round-fruited). 2. July. Italy. 1818.

— *spinulo'sa* (small-spined). 2. July. South France. 1820.

— *striat'a* (channelled). 2. July. South France. 1820.

— *Tenorea'na* (Grenada). 2. July. Italy. 1820.

— *tentacul'ata* (tentaculated). 1. June. South Europe. 1800.

— *turbina'ta* (top-shaped). 1. July. South Europe. 1680.

MEDIN'ILLA. (Named after *J. de Medina* y *Pineda*, governor of the Marianne Islands. Nat. ord., *Melastomads* [Melastomaceæ]. Linn., 10-*Decandria* 1-*Monogynia*.)

Stove evergreen shrubs, with rosy flowers. Cuttings of stumpy side-shoots root the safest, though cuttings of the young shoots root freely, when damping is avoided, in sand, with a little peat, under a bell-glass, and in a bottom-heat; peat and loam, fibry and sandy. Winter temp., 48° to 55°; summer, 60° to 85°.

M. erythrophy'lla (red-leaved). 2. August. Khoo'sea. 1837.

— *Javane'nsis* (Javanese). 4. December. Java. 1850.

— *Sieboldia'na* (Siebold's). 3. Rose. April. Moluccas.

— *specio'sa* (showy). 4. July. Java. 1845.

MEDLAR. *Me'spilus Germa'nica*.

Varieties.—Blake's Large; Dutch, largest fruit; Nottingham, small, but best flavoured; Stoneless, inferior, but keeps longer than others.

Propagation: by Seed.—This is a tedious mode, the seed usually lying two years before it germinates. Sow, immediately the fruit containing the seed decays, in common, light soil. Water the seedlings frequently in dry weather; thin them to two feet apart; and when four or five years old they will be fit for final planting.

By Layers.—This may be done in February and March, making use of shoots of the previous year. They will have rooted by the autumn.

Grafting and Budding may be done on the White Thorn; but the Pear is a better stock for the Medlar.

Soil.—A well-drained, but retentive loam suits it best.

Planting, Pruning, &c.—See the directions given for the Pear.

Storing.—The fruit ought not to be gathered until November, for if the gathering is made before the fruit is fully matured, it shrivels without ripening in its decay. Spread them singly upon sand, the calyx, or open side downwards, and dipping the stalk end in a strong brine of common salt and water, which is said to check the occurrence of mouldiness.

MEDUSA'S-HEAD. *Euphorbia ca'put Medu'sæ.*

MEGACLI'NIUM. (From *megas*, large, and *kline*, a bed; referring to the axis, or rachis, on which the flowers are borne. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-*Gynandria* 1-*Monandria*. Allied to *Cirrhopetalum*.)

Stove orchids, from Sierra Leone. Division of the plant in spring; shallow baskets in sphagnum, rotten wood, charcoal, and fibry peat. Winter temp., 60°; summer, 60° to 90°.

M. falcatum (sickle-shaped). 1. Yellow, red. March. 1824.

— *ma'jus* (large). Yellow, red. March. 1833.

— *ma'ximum* (largest). 1. Yellow, green. 1836.

— *velutinum* (velvety). Purple. Yellow. 1845.

MELALEUC'A. (From *melas*, black, and *leukos*, white; referring to the colours of the old and young bark. Nat. ord., *Myrtleblooms* [Myrtaceæ]. Linn., 18-*Polyadelphia* 2-*Polyandria*.)

Evergreen shrubs, from New Holland, except where otherwise mentioned. Cuttings of the shoots in May, as they are getting firm at their base, and not more than three inches in length, in sand, under a bell-glass; peat and loam, most of the latter, with a fair portion of sand, and nodules of charcoal. Winter temp., 35° to 45°. Many are about as hardy as a myrtle, and will stand against a conservative wall with a little protection.

STOVE EVERGREENS.

M. leucade'ndron (white *Cajuput*-tree). 15. White. E. Ind. 1796.

— *mi'nor* (smaller *Cajuput*). White. E. Ind. 1800.

GREENHOUSE EVERGREENS.

M. acero'sa (sharp-pointed). Purple. June.

— *callistemo'nea* (beautiful-stamened). Purple, rose. June.

— *calyci'na* (large-calyled). 3. Purple. July.

— *decussa'ta* (decussate-leaved). 4. Lilac. August. 1803.

— *de'nsa* (thickly-leaved). 2. Purple. 1803.

— *diosma'fo'lia* (diosma-leaved). 4. Reddish. June. 1794.

— *dumo'sa* (bushy). 2.

— *erube'scens* (blushing-stamened). Yellow. June.

— *ful'gens* (splendid). 6. Scarlet. August. 1803.

— *genistifo'lia* (broom-leaved). 4. Red. 1793.

— *gra'ndis* (grand). 4.

— *Huge'tii* (Hugel's). 1832.

— *hypericifo'lia* (St. John's-wort-leaved). 3. Scarlet. July. 1792.

— *inca'na* (hoary). 3. Yellow. July. 1817.

— *juniperoi'des* (juniper-like). 3. Striped. June. 1830.

— *lanceola'ta* (spear-head-leaved). 4. July. 1817.

— *paludo'sa* (marsh). 6. Red. August. 1803.

— *pulche'lla* (neat). 2. Purple. July. 1803.

— *ra'dula* (file-like). Pink. May.

— *scab'ra* (rough-leaved). 3. Purple. May. 1803.

— *seria'ta* (row-ranged). Rose. June.

— *spino'sa* (spiny). Yellow. June.

— *squa'mea* (scaly-calyled). 4. Lilac. June. 1805.

— *suarro'sa* (spreading). 2. White. 1794.

— *stria'ta* (channelled-leaved). 4. Purple. June. 1803.

— *stypheloi'des* (styphe'lia-like). 4. White. June. 1793.

M. tetrago'na (four-angled). 4. 1820.

— *thymifo'lia* (thyme-leaved). 2. Purple. August. 1792.

— *trichophy'lia* (hair-leaved). Pink. May.

— *trine'rnia* (three-nerved). 3. 1816.

— *virgata* (twiggy). 2. 1818.

MELANORRHÆ'A. (From *melas*, black, and *rheo*, to flow; referring to the juice becoming black varnish. Nat. ord., *Anacards* [Anacardiaceæ]. Linn., 23-*Polygamia* 2-*Diœcia*.)

The black poisonous varnish of Martaban is the produce of this tree, the Theet-see, or Kheu of India. Stove evergreen tree. Cuttings of ripe shoots, with the leaves on, in sand, under a glass, and in heat; peat and loam. Winter temp., 55° to 60°; summer, 60° to 85°.

M. usula'tissima (most useful. Black Varnish-tree). 100. Red. E. Ind. 1829.

MELANTHIUM. (From *melas*, black, and *anthos*, a flower; referring to the dusky blossoms. Nat. ord., *Melanths* [Melanthaceæ]. Linn., 6-*Hexandria* 3-*Trigynia*. Allied to *Veratrum*.)

The *Melanths* are all more or less poisonous. Half-hardy bulbs, requiring the greenhouse or cold pit in winter, or the bulbs to be kept dry and at rest; propagated by offsets and seeds; sandy loam and peat.

M. Cape'nse (Cape). 3. Yellow. May. Cape of Good Hope. 1769.

— *ciliat'a* (hair-fringed). 4. Pale yellow. June. Cape of Good Hope. 1810.

— *grami'neum* (grassy). 1. White. May. Madagore. 1823.

— *ju'nceum* (rush-leaved). 4. Pink. September. Cape of Good Hope. 1780.

— *phalangioi'des* (phalangium-like). 1. White. June. Carolina. 1810.

— *secu'ndum* (side-flowering). 1. White. September. Cape of Good Hope. 1810.

— *Sibi'ricum* (Siberian). 1. Siberia. 1823.

— *trique'trum* (three-sided). White, purple. April. N. Amer. 1847.

— *unifo'rum* (one-flowered). 3. White, yellow. June. Cape of Good Hope. 1787.

MELASTOMA. (From *melas*, black, and *stoma*, a mouth; the eatable berries stain the mouth a dark purple. Nat. ord., *Melastomads* [Melastomaceæ]. Linn., 10-*Decandria* 1-*Monogynia*. Allied to *Osbeckia*.)

Stove evergreens. Cuttings of the shoots in sandy peat, under a bell-glass, in heat; peat and loam, sandy and lumpy. Winter temp., 45° to 60°; summer, 60° to 85°.

M. affi'nis (related). 4. Purple. E. Ind. 1810.

— *Afzelia'na* (Afzelius's). 1½. Red. Sierra Leone 1824.

— *a'spera* (rough). 6. Purple. June. E. Ind. 1815.

— *Ba'nkeii* (Sir J. Banks'). 1½. White. September. N. Holland. 1824.

— *ca'ndida* (white). 4. Purple. China. 1824.

— *corymbo'sa* (corymbd). 2. Purple. June. Sierra Leone. 1792.

— *cymo'sa* (cymed). 2. Purple. June. S. Amer. 1792.

— *ecosia'ta* (ribless). 4. Purple. July. Jamaica. 1793.

- M. elongata* (elongated). 1. Purple. May. Sierra Leone. 1823.
 — *macrocarpa* (large-fruited). 6. Purple. June. China. 1793.
 — *Malabathrica* (Malabar). 6. Purple. June. E. Ind. 1793.
 — *pulverulentum* (powdered). Red. March. Sumatra. 1823.
 — *sanguinea* (bloody). 6. Purple. September. China. 1818.

MELHANIA. (After *Mount Melhan*, in Arabia Felix, where the first of them was discovered. Nat. ord., *Byttneriads* [*Byttneriaceæ*]. Linn., 16-*Monadelphina* 2-*Pentandria*. Allied to *Astrapæa*.)

Stove evergreen trees, with white flowers. Cuttings of the half-ripened shoots in sandy peat, in a little bottom-heat, and under a bell-glass; sandy peat and a little loam. Winter temp., 50° to 60°; summer, 60° to 85°.

- M. Burchellii* (Burchell's). 15. Cape of Good Hope. 1818.
 — *erythroxylon* (red-wood). 15. July. St. Helena. 1772.
 — *melanoxyton* (black-wood). 2. July. St. Helena.

MELIA. Bead-tree. (*Melia*, the Manna Ash; referring to the resemblance of the leaves. Nat. ord., *Meliads*. [*Meliaceæ*]. Linn., 10-*Decandria* 1-*Monogynia*.)

Seeds and cuttings of the ripe shoots in sand, under a bell-glass, and in a mild bottom-heat; sandy loam and fibry peat. *Azedarach* and *auratilis* will stand against a wall in the south of the island. The monks formerly strung the fruit as beads.

GREENHOUSE EVERGREENS.

- M. australis* (southern). Lilac. N. Holland. 1810.
 — *Azedarach* (Azedarach). 45. Blue. July. Syria. 1656.

STOVE EVERGREENS.

- M. Azadirachta* (Azadirachta). 60. White. July. E. Ind. 1759.
 — *composita* (compound-leaved). 20. White, red. July. E. Ind. 1810.
 — *excoleta* (lofty). 40. White. July. E. Ind. 1819.
 — *Guineensis* (Guinea). 30. White, red. July. Guinea. 1824.
 — *robusta* (robust). 30. White, red. July. E. Ind. 1820.
 — *superba* (superb). 20. White, red. E. Ind. 1810.

MELIANTHUS. Honey Flower. (From *mel*, honey, and *anthos*, a flower; the tubes contain a copious supply of honey-like juice. Nat. ord., *Beaucapers* [*Zygophyllaceæ*]. Linn., 4-*Tetrandria* 1-*Monogynia*.)

The natives obtain honey for food by shaking the branches of *Melianthus major* when in blossom. Evergreens, from the Cape of Good Hope. Cuttings of young shoots in sandy soil, under a hand-light; rich, sandy soil; require the protection of a greenhouse, cold pit, or a conservative wall in winter.

- M. comosus* (tufted). 3. Yellow. 1820.
 — *major* (greater). 10. Brown. June. 1688.
 — *minor* (smaller). 2. Brown. June. 1696.

MELICHRUS. (From *melichros*, honey-coloured; referring to glands on the flowers. Nat. ord., *Epacrids* [*Epacridaceæ*]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Styphelia*.)

Greenhouse scarlet-flowered evergreens, from New Holland. Cuttings of the shoots when two inches long, and a little hard at their base; side-cuttings, after pruning down, are the best; sandy peat. Winter temp., 38° to 45°.

- M. medius* (middle). 2. May. 1824.
 — *rotata* (wheel-shaped). 1½. June. 1824.

MELICOCOA. Honey-berry. (From *mel*, honey, and *coccus*, a berry; referring to the sweetness of the fruit. Nat. ord., *Soapworts* [*Sapindaceæ*]. Linn., 8-*Octandria* 1-*Monogynia*. Allied to *Pierardia*.)

Stove evergreen trees. Cuttings of ripe shoots in sand, under a bell-glass, in heat; peat and loam. Winter temp., 48° to 60°; summer, 60° to 80°.

- M. bijuga* (two-paired). 16. Yellow. Antilles. 1778.
 — *olivaceiformis* (olive-shaped). 20. Yellow. Grenada. 1824.
 — *paniculata* (panicked). 20. St. Domingo. 1820.

- *trijuga* (three-paired). 20. Ceylon. 1820.

MELICOPE. (From *mel*, honey, and *kope*, an incision; referring to the nectary of notched glands. Nat. ord., *Rueworts* [*Rutaceæ*]. Linn., 8-*Octandria* 1-*Monogynia*.)

Greenhouse evergreen. Cuttings of small side-shoots in sand, under a bell-glass, in May; sandy loam, with a little peat and leaf-mould. Winter temp., 40° to 48°.

- M. ternata* (three-leafted). 6. White. New Zealand. 1822.

MELICYTUS. (From *meli*, honey, and *cytos*, a cavity; referring to the cavity at the bottom of the stamens. Nat. ord., *Bixads* [*Flacourtiaceæ*]. Linn., 22-*Diœcia* 6-*Hexandria*. Allied to *Flacourtia*.)

Greenhouse evergreen shrub. Cuttings of shoots getting firm, in sand, under a bell-glass, in May; sandy peat, and a little loam. Winter temp., 38° to 45°.

- M. ramiflorus* (branch-flowered). 6. White. New Zealand. 1822.

MELILOTUS. Melilot. (From *meli*, honey, and *lotus*, the honey-lotus. Nat. ord., *Leguminous Plants* [*Fabaceæ*]. Linn., 17-*Diadelphia* 4-*Decandria*. Allied to *Trifolium*.)

Seed in common soil; *arborescens*, by seed and by cuttings, does best in a sheltered place, and is deserving of more cultivation.

- M. arborescens* (tree). 15. White. July. Turkey. 1826.
 — *leucantha* (white-flowered). 4. White. July. Europe.
 — *suauiolens* (sweet-smelling). 3. Yellow. July. Daburia. 1824.

MELI'SSA. Balm. (From *melissa*, a bee; literally, a bee-flower. Nat. ord., *Labiates* [Lamiaceæ]. Linn., 14-*Didynamia* 1-*Gymnospermia*.)

Hardy herbaceous perennials. Dividing the roots in spring; common garden-soil. See BALM.

M. Cretica (Cretan). White, purple. June. Candia. 1596.

— *officina'lis* (shop). 1. White. July. South Europe. 1573.

— *variegata* (striped-leaved). 1. White. June. Gardens.

— *villosa* (shaggy). White. August. Italy. 1573.

— *microphy'lla* (small-leaved). 1. Purple. June. Corsica. 1829.

— *polyanthos* (many-flowered). 1. White. July. 1820.

— *Pyrena'ica* (Pyrenean). 1. White, purple. July. Pyrenees. 1800.

MELITTIS. Bastard Balm. (The same derivation as *Melissa*. Nat. ord., *Labiates* [Lamiaceæ]. Linn., 14-*Didynamia* 1-*Gymnospermia*.)

Same culture as BALM.

M. melissophy'llum (balm-leaved). 1. Flesh. May. England.

— *alpina* (alpine). 2. Flesh. May. Switzerland.

— *grandiflora* (large-flowered). 1. White, yellow. May. England.

MELOCACTUS, or MELON-SHAPED CACTUS, a sectional genus of Cactus, differing from *Echinocactus* in having the flowers produced on a head covered with dense, woolly, and bristly hairs, called a tomentum, while those of *Echinocactus* issue from the bare ribs, or angles. Treatment similar to that for *Mammillaria*. Suckers and offsets; loam, peat, and lime-rubbish.

MELODINUS. (From *melon*, an apple, and *dineo*, to turn round; referring to the shape of the fruit. Nat. ord., *Dogbanes* [Apocynaceæ]. Linn., 5-*Pentandria* 2-*Digynia*. Allied to *Carissa*.)

The fruit of this and some other allied genera are eatable, but not of much merit. Stove evergreen twiners, with white flowers, blooming in July. Cuttings of half-ripened side-shoots in sand, under a bell-glass, in heat; peat and loam, with a little sand. Winter temp., 50° to 60°; summer, 68° to 85°.

M. mono'gynus (one-pistilled). 10. E. Ind. 1820.

— *parvifolius* (small-leaved). E. Ind. 1775.

— *scandens* (climbing). 15. New Caledonia. 1775.

— *undulatus* (waved-leaved). E. Ind.

MELOLONTHA. Every one knows the common May-bug, or Cockchafer (*Melolontha vulgaris*); a drawing and a description of its grub are given at page 15, vol. v., of *The Cottage Gardener*. This grub very closely resembles that of another species, *M. horticola*, Garden Beetle, or Bracken-clock—*Phyllopertha* of some

entomologists. The latter beetle (*Ibid.*, ii., 171) is found in June and July, among the petals of white roses. It is nearly half an inch long, and rather less than a quarter of an inch broad. Its wing-cases are reddish-brown, shining, and shorter than the body; the body and head are dark green, and the antennæ reddish, having at their ends a dark-green club. It also feeds on the leaves of apples, pears, and roses, gnawing them full of small holes, and even transferring its attacks to the young fruit of the apple. During the latter part of July the female retires into the earth for the purpose of there depositing her eggs, from which the grubs speedily are produced, and feed upon the roots of plants, especially of grass. The only mode of reducing the number of these beetles is by searching for them during the evening, when, if detected, they stiffen their outstretched legs, and feign death; but in the day they fly about swiftly, and are captured with great difficulty. It is said that when grass suffers from the grubs of either of these beetles, they may be extirpated by watering with the ammoniacal liquor from gas-works.

ME'LO. (*Cucumis me'lo*.)

Varieties.—These are so numerous, that we must be very severe in our selection, confining ourselves to such as are most generally useful in Britain; and these we must classify according to their habits.

Cantaloups, the Rocks, the Green-fleshed, the Valentia, or Winter, and the Persians, with their various hybrids. Amongst the *Cantaloups* we have both round and oblong, plain and netted, the Orange, the Montagnes, &c. In the *Rocks* we have the Small Scarlet-fleshed, the Black, the Large, and the Early, &c. In the *Green-flesh* class we may point to the Beech-wood, which may almost be considered the type of this section, the Small Green-fleshed Egyptian, of exquisite flavour, and thin rind; these, with the various varieties known by the name of Snow's, Terry's, the Kew green-flesh, &c. These are the most generally useful melons, being hardy, free-setters, and not liable to rot or canker.

Next we may advert to the *Winter Melons*, a class which will keep a long time after they are cut; and the *Valentia* may be placed amongst this division.

Lastly, are the *Persians*, with their useful hybrids. The types of these Persian hybrids are, principally, the Ispahan, the Dampsha, the Germek, and the Hoo-sainee.

Propagation: by Seed.—Most practical men prefer old seed to new, as running less to bine. A bottom-heat of from 75° to 85° is essential; and when the seedlings are up, and just before the second set of leaves begin to appear, the young plants may be potted into five-inch pots, two in a pot, in a soil of three parts strong loam, enriched with manure. A temperature of 70° to 80° must be secured to them, and the pots should be plunged. As soon as the central shoot begins to sprout from between the seed-leaves it may be pinched off; and this, if other points be right, will cause the protrusion of a pair, or more, of shoots, more fruitful in character, and these are enough as "leaders." In about a fortnight afterwards they will be fit for the fruiting-bed.

By Cuttings.—This mode of culture has been recommended by some, as serving to restrict that excessive luxuriance which is frequently inimical to fertile blossoming. Under proper culture the plan answers; but, on the whole, the seedling plan is the better. It is, however, a certain mode of perpetuating choice kinds, and as such should not be lost sight of. Healthy, free-growing, yet short-jointed shoots, should be selected, and the usual bottom-heat and atmospheric temperature must be secured; in addition to this, there must be a liberal amount of atmospheric moisture, and the close treatment, with shading, incidental to the growth of cuttings. When established, the plants will need no "stopping;" and they require a more generous soil when finally planted.

Subsequent Culture.—The melon is fruited by a variety of modes, but in all a certain amount of bottom-heat, as well as atmospheric, is absolutely necessary. The bottom-heat should never descend below 70°, nor range above 90°, whilst an atmosphere not below 65°, nor above 80°, will be most suitable, permitting, however, a rise of eight or ten degrees from sunshine. In no situation can the melon endure shade.

Culture in the Dung-bed. (For preparation of this see HOTBED.)—The earliest melons are generally sown about the

middle of January, in a seed-bed specially prepared. Great caution is necessary; and when the plants are up, and the two seed-leaves fully developed, they may be planted out singly in five-inch pots, in rich soil. About this time the ridging-out bed must be got up for their reception, and this must be composed of materials perfectly sweet. Regular ventilation and frequent waterings will soon render the air within perfectly sweet; and then the hills of soil may be introduced; in doing which it is good practice to form hollows two-thirds the depth of the bed, and to fill them to the ordinary surface with brickbats or rubble, laying a turf with the grass downwards on the top, and on this the hillocks may be placed. The young plants will, by this time, have produced three or four shoots each, and it is advisable to retain two of the best on each. They may now be ridged out, and must afterwards be occasionally watered when dry; watering, according to the weather, also the sides of the frame and the uncovered dung almost daily. Henceforth, regular linings must be supplied, and those often turned and watered; maintaining steadily the temperatures, and taking care that the bottom-heat in no part of the interior exceeds 90°. As strong linings will be requisite at this early period, much water will be necessary twice or thrice a-week, round the insides of the frames, and next to the linings, to prevent burning. As soon as the plants begin to spread, the remaining soil must be added; each light requiring, in the whole, from two to three barrowsful. The surface of the bed must be formed convex, the plants occupying the highest point. Two plants are enough for each light, and a shoot may be led to each angle of the light, and then the main shoots, taking the whole light, will form the letter X, the centre of the letter indicating the ridging-out point. As soon as each of these shoots reaches to within from six to nine inches of the frame side, it must be pinched, and the laterals forced out by this pinching will produce blossoms, some males, others females; the former generally preponderating.

The female blossoms must be carefully "set" or impregnated daily, choosing about two o'clock, p.m., for the operation, when the farina will be dry. As soon as

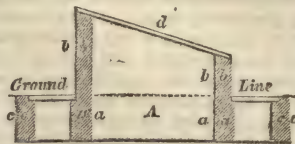
from three to four fruit are secured on each plant, and these are as large as a pigeon's egg, all the blossoms must be kept cut away, male and female, as they appear. Each axillary shoot with a fruit must be pinched or stopped three or four eyes beyond the fruit; and frequent stopping practised with all the other portions, removing at all times coarse shoots which threaten to overpower the bearing portions. The chief object should be to expose as much healthy foliage as possible, and that connected with bearing portions, to the light, not suffering late-formed leaves to overshadow the older healthy leaves. Still, the sides of the frame must be occasionally watered; and when the fruit is as large as a hen's egg, a liberal watering of liquid-manure may be given, avoiding, however, wetting the collars of the plants at all times. Ventilation must be daily had, but much caution is necessary; good linings must be maintained, in order to support the necessary temperature with ventilation. By these means, fine, ripe Cantaloups or Beechwoods may be cut by the middle of May. We may add that the root-watering may require to be repeated, but water must be entirely withheld a week or two before they commence ripening, and an extra amount of ventilation used during the ripening period.

The main features of their culture in *houses* or *pits*, or on *trellises*, are precisely the same, except that, having a greater depth of soil, and more room to ramble, a much greater length of main shoot may be allowed before stopping. In whatever situation, about 80° of bottom-heat, and an average of 75° atmospheric, will be found to suit them best, except that in proportion as the sun-light increases they will readily bear an increase of from 5° to 10°, both to the roots and branches.

Bed.—Although a common hotbed is generally used for this plant, yet a pit is more economical of heat, and, by enabling a more regular temperature to be sustained, renders the fruit in greater perfection. The pit is a rectangular frame or bin, built of nine-inch brick-work, and enclosed by a glass case of the necessary dimensions. Mr. Smith, gardener to A. Keith, Esq., of Ravelstone, N.B., has suggested a mode of building a pit which renders the renewal of the heat in it easy; and, as the committee appointed to examine it report, is the means of con-

siderable saving compared with the common mode of forming an open bed. But the facility with which linings may be applied is its best feature.

The accompanying sketch will at once show the form of the pit and Mr. Smith's mode of applying the linings. *A* is the pit, the side of which, *a a*, instead of being a continuous piece of brick-work, are merely rows of pillars six feet apart;



and the brick-work of the frame, *b b*, is supported by bars of iron reaching from pillar to pillar. An outer wall, *c c*, is constructed at two and a half feet distance from the pillars on each side; thus two bins are formed in which the linings are inserted, as is found necessary, and are kept close covered with thick boards; *d* represents the lights, which thus are formed without any wooden frames. For other modes of construction, see *HOTBED, PITS, &c.* If a common hotbed is employed, fifteen barrow-loads of dung is the usual allowance to each light, which make it about six inches higher than is allowed for the cucumber bed of largest dimensions.

If a melon-house be employed, the following is the form and mode adopted by Mr. Fleming:—



"The house is twenty-eight feet long, and fifteen wide, and is heated by means of a saddle boiler, with four-inch pipes passing round the outside of the pit, which pipes are fitted with cast-iron troughs, for holding water to regulate the moisture of the atmosphere. Beneath the pit is an arched chamber, *a*, along the front of which runs the flue, *b*, imparting a slight degree of heat to the soil above, and also serving to heat a series of arches, *c*, which run along beneath the path, and are entered from a house in front, *d*, and which are used for

forcing rhubarb, &c., in the winter."—*Gardeners' Chronicle*.

Culture of the Persian kinds.—These are much more tender than the ordinary green-fleshed melons; they will not endure so low a temperature, and neither will they thrive in so moist an atmosphere. A high authority, speaking of the Persian melons, has thus observed:—"They are found to require a very high temperature, a dry atmosphere, and an extremely humid soil, while they are at the same time impatient of an undue supply of moisture, which causes spottings and decay long before the fruit is ripe."

We are informed that in Persia, where the melon grows in the open fields, that the ground where they are cultivated is crossed in various ways by streams, between which the melons are placed on raised beds highly manured. It would seem, therefore, that in order to excel in their culture, the following may be taken as maxims:—1st. The brightest of glass is requisite, to admit every ray possible of the sunlight. 2nd. A very high atmospheric temperature must be sustained, and especially in order that the cultivator may be enabled to ventilate freely, to prevent the accumulation of damp. 3rd. A rich soil, dry in its upper surface, but rather moist beneath. It is urged by those who have been successful in their culture, that they should be trained on trellises; and there is no doubt the opinion is correct. They may, however, be trained against the back walls of stoves, or grown in large pots, to which in due time a dish of water may be affixed, and the shoots trained on portable trellises.

We will conclude with a few general remarks. The foliage of melons, of whatever kind, should never be ruffled or disturbed; training and stopping, therefore, must be attended to in due time. Melons should not be encouraged to become luxuriant until a crop of fruit commences swelling; after this it is almost impossible to encourage them too much. Again, they should never be watered indiscriminately overhead, after the manner of cucumbers, unless it be some of the ordinary green-flesh kinds, during periods of continued heat and a dry atmosphere.

Diseases.—These are few properly so called except the gum and canker, and those are mostly engendered by wounds

or bruises on gross subjects, producing a sort of vegetable gangrene. When such occurs, it is a good plan to place a slate, tile, or piece of glass beneath the affected part, and to pile a mixture of quick-lime three parts, and charcoal-dust one part, in a hillock around and above the wound, changing the same when it becomes damp.

Insects.—See ACARUS, APHIS, and THRIPS.

MELON PUMPKIN. *Curcubita melope'po*.

MELON THISTLE. *Melocactus*.

MELON TURK'S-CAP. *Melocactus communis*.

MEME'CYLON. (Dioscorides' name for the fruit of the Arbutus. Nat. ord., *Melastomads* [Melastomaceæ]. Linn., 8-Octandria 1-Monogynia. Allied to Mouriria.)

The berries of *M. edule* are eatable, but not very good. Stove evergreens. Cuttings of shoots in sand, under a glass, in heat; loam and peat, with a good portion of sand, and pieces of charcoal. Winter temp., 50° to 55°; summer, 60° to 65°.

M. angulatum (angled). 3. Purple. May. Mauritius. 1826.

—*capitellatum* (small-headed). 4. July. E. Ind. 1796.

—*edule* (eatable). 10. Purple. Ceylon. 1820.

—*grande* (large). Blue. May. E. Ind. 1824.

MENASTE'LMA. (From *mene*, the moon, and *stelma*, a crown; referring to the shape of the heads of flowers. Nat. ord., *Asclepiads* [Asclepiadaceæ]. Linn., 5-Pentandria 2-Digynia.)

Stove evergreen twiner. Cuttings of the young shoots when three inches long, taken off close to the stem, in sand, under a glass, and in bottom-heat; peat and loam. Winter temp., 55° to 60°; summer, 60° to 80°.

M. parviflorum (small-flowered). 6. Green, white. W. Ind.

MENIO'CUS. (From *mene*, the moon, and *okkos*, the eye; referring to the shape of the seed-pod. Nat. ord., *Crucifers* [Brassicaceæ]. Linn., 15-Tetradynamia. Allied to Aubretia.)

A hardy annual. Seed in April, in common soil.

M. linifolius (flax-leaved). 4. White. June. Caucasus. 1819.

MENI'SCIUM. (From *meniskos*, a crescent; referring to the shape of the spore, or seed-cases. Nat. ord., *Ferns* [Polypodiaceæ]. Linn., 24-Cryptogamia 1-Filices.)

Stove Ferns, with brown spores. See FERNS.

M. cuspidatum (sharp-pointed). May. Isle of Luzon.

—*palustre* (marsh). 4. May. W. Ind.

—*proliferum* (proliferous). May. E. Ind. 1820.

—*reticulatum* (netted). 2. May. Martinique. 1793.

M. sorbifolium (sorb-leaved). 1. Brazil. 1823.
— *triphyllum* (three-leaved). 1. June. E. Ind. 1828.

MENISPERMUM. Moonseed. (From *menē*, the moon, and *sperma*, a seed. Nat. ord., *Menispermads* [*Menispermaceæ*]. Linn., 22-*Diæcia* 10-*Decandria*. Allied to *Cocculus*.)

Chiefly hardy deciduous twining plants. Division of the roots; cuttings in spring under a hand-light, and by seeds sown at the same time; common garden-soil.

M. amarissimum (most-bitter). Yellow. E. Ind. 1804. Stove evergreen climber.
— *Canadense* (Canadian). 10. Green, yellow. June. N. Amer. 1691.
— — *lobatum* (lobe-leaved). Green, yellow. June. N. Amer. 1732.
— *Lyonii* (Lyon's). 10. Purple. June. N. Amer. 1823.

MENONVILLEA. (Named after *T. de Menonville*, a French naturalist. Nat. ord., *Crucifera* [*Brassicaceæ*]. Linn., 15-*Tetradynamia*.)

Hardy annual. Seeds; common garden-soil.

M. filifolia (thread-leaved). 1. Greenish-white. August. Chili. 1836.

MENTHA. Mint. (*Mentha* is the Latin name of the herb. Nat. ord., *Labiates*, or *Lipworts* [*Lamiaceæ*]. Linn., 14-*Didynamia* 1-*Gymnospermia*.)

Hardy herbaceous perennials, purple-flowered, except where otherwise mentioned. Division of the plant or roots in spring and autumn—the first period is the best in stiff, clayey soils; common garden-soil.

M. arvensis (field). 2. August. Britain.
— *balsamea* (balsam-scented). 1½. July. Italy. 1804.
— *blanda* (mild). 2. White. September. Ne-paul. 1824.
— *Canadensis* (Canadian). 1. August. N. Amer. 1800.
— — *glabra* (smoothed). 1. July. N. Amer. 1800.
— *citratea* (citron-scented). July. Britain.
— *coccinea* (scarlet). 1. Scarlet. July. E. Ind. 1823.
— *dentata* (toothed). 1. July. Germany. 1816.
— *glabra* (smoothed). 1. July. Egypt. 1802.
— *incana* (hoary). 1½. July. Greece. 1790.
— *lavandulæ* (lavender-leaved). 1. July. Spain. 1823.
— *piperita* (pepper). 2. August. England.
— *pulegium* (pennyroyal). 4. August. Britain.
— *Requienii* (Requien's). 4. Lilac. August. Corsica. 1829.
— *salicina* (willow-leaved). Cape of Good Hope.
— *suaavis* (sweet). Red. July. France.
— *viridis* (green. Spear). 2. August. Britain.
— — *crispa* (curled). 2. July. 1847.

MENTZELIA. (Named after *G. Mentzel*, a German botanist. Nat. ord., *Loasads* [*Loasaceæ*]. Linn., 12-*Icosandria* 1-*Monogynia*. Allied to *Bartonia*.)

Easily raised from seed, and *stipitata* from shoots in sand, under a glass, in heat; sandy loam and peat.

M. aspera (rough). 2. Yellow. July. America. 1733. Hardy annual.

— *stipitata* (stalked-flowered). 2. Yellow. October. Mexico. 1835. Hardy herbaceous perennial.

MENYANTHES. Buck Bean. (From *men*, a month, and *anthos*, a flower; the time of duration. Nat. ord., *Gentian-worts* [*Gentianaceæ*]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Villarsia*.)

Hardy perennial aquatics. Division of the plant, and by seed in spring; moist situation.

M. trifoliata (three-leaved). 1. White. July. Britain.
— — *Americana* (American). 1. Pale red. July. N. Amer. 1818.

MENZIESIA. (Named after *A. Menzies*, surgeon and naturalist to the expedition under Vancouver. Nat. ord., *Heathworts* [*Ericaceæ*]. Linn., 8-*Octandria* 1-*Monogynia*. Allied to *Andromeda*.)

Chiefly by layers early in autumn, and by cuttings under a hand-light; sandy peat, with a little loam.

HARDY DECIDUOUS SHRUBS.

M. erecta (upright). 1. Red. April. Siberia.
— *ferruginea* (rusty). 4. Brown. May. N. Amer. 1811.
— *globularis* (globular-flowered). 4. Brown. May. N. Amer. 1806.

HARDY EVERGREENS.

M. empetriformis (empetrum-like). Purple. June. N. Amer. 1810.
— *polifolia* (polium-leaved). 2. Purple. July. Ireland.
— — *atro-purpurea* (dark purple). 2. Dark purple.
— — *flore-alba* (white-flowered). White. June. Ireland.
— — *latifolia* (broad-leaved). 2. Purple. July.
— — *longifolia* (long-leaved). 2. Purple. July.
— — *nanã* (dwarf). 4. Purple. July. Ireland.
— — *pallida* (pale-flowering). 2. Purple. July. Britain.
— — *taxifolia* (yew-leaved). Purple. June. Scotland.

MERCURY. (*Chenopodium bonus Henri-cus*.) This perennial plant is known by the various names of Angular-leaved Goosefoot, English Mercury, or Allgood, Good Henry, Good King Henry, and Wild Spinach. In many parts of Lincolnshire, as about Boston, it is cultivated to use as spinach; the young shoots are also peeled, boiled, and eaten as asparagus. Sow the seed in March—but in October is better—in a well-manured bed, prepared as for asparagus; in the middle of September plant the seedlings, during rainy weather, in a similar bed, in rows a foot apart each way. Hoe frequently, and use the shoots or tops as required. Dress the beds with manure the same as for asparagus; they will continue in production many years.

This must not be mistaken for *Mercurialis*, or Mercury, one of our common hedge-weeds; for this is poisonous. *Mercurialis* is a dioecious plant, and belongs to the Nat. ord., *Spurge-worts*; but the *Chenopodium* belongs to the Nat. ord., *Chenopods*, and to the Linnæan class and order *Pentandria Monogynia*.

MERENDE'RA. (This should have been added to *Bulbocodium*.)

M. Caucasica (Caucasian). 4. Purple. August. Caucasus. 1823.

MERODON NARCISSI. *Narcissus* Fly. The bulbs of the daffodil and of other species of the narcissus frequently refuse to vegetate; and the usual cause is, that their interiors have been eaten by the grub of this two-winged fly. This disappointment may be avoided if these bulbs are examined before being planted.

In the month of November, says Mr. Curtis, one or two large, roundish holes are sometimes found on the outsides of the bulbs of the daffodil and narcissus. The bulbs are more or less decayed within, where a maggot will generally be found, which, by feeding in the heart during the summer and autumn months, has been the sole author of the mischief. This larva is somewhat like the flesh-maggot, and not unlike a bot, only that it is not jagged with spines, and instead of being whitish, its natural colour, is changed to brown by its living amongst the slimy matter which has been discharged from its own body, causing the gradual rotting of the bulb. Towards the end of November the maggot is transformed into a pupa, to accomplish which it eats its way out of the bulb near the roots, and buries itself in the surrounding earth. The pupæ are dull brown, egg-shaped, rough, and strongly wrinkled. In this state they remain until the following spring, when the flies issue from them. Their eggs are then deposited, but upon what part of the plant they are laid has not been observed, but probably upon the bulb near the base of the leaves. April seems to be the month when most of the flies hatch; and they have been compared to small humble-bees, from the disposition of the colours, which are, for the most part, yellow, orange, and black; but they certainly bear a greater resemblance to some of the bot-flies. From bees they are readily distinguished by having only two wings,

the horns and proboscis are totally different, and they have no stings.

MESEMBRYA'NTHUM. Fig-Marigold. (From *mesembria*, mid-day, and *anthemon*, a flower; referring to the flowers opening better on sunny days. Nat. ord., *Ficoids* [*Mesembryaceæ*]. Linn., 12-*Icosandria 2-Di pentagynia*.)

Greenhouse succulent plants, from the Cape of Good Hope, except when otherwise mentioned. All by seeds, and most of them by cuttings, dried at the base, before inserting them in sandy soil, peat, loam, lime-rubbish, and old cow-dung, well-drained. Winter temp., 35° to 45°. Well suited for window-plants and rough rock-work, out of doors, in summer. Seeds should be sown in a hotbed, and plants gradually hardened off before planting out.

GREENHOUSE ANNUALS.

- M. cadu'cum* (deciduous). 1. Pink. July. 1774.
- *calendul'ceum* (marigold-flowered). 2. Yellow. August. 1819.
- *Californicum* (Californian). Purple. September. California. 1847.
- *crystallinum* (crystalline Ice Plant). White. July. Greece. 1775.
- *geniculiflorum* (joint-flowering). 1. White. August. 1727.
- *glabra* (smooth). 2. Yellow. August. 1787.
- *helianthoides* (sunflower-like). 2. Yellow. September. 1774.
- *pilosum* (shaggy). 2. Yellow. July. 1800.
- *pinnatifidum* (leaf-cleft). 1. Yellow. July. 1774.
- *pomeridianum* (afternoon). 1. Yellow. July. 1774.
- *Andre'wsii* (Andrew's). 1. Yellow. July.
- *puberulum* (rather-downy). White. 1829. Biennial.
- *pyrope'um* (flame-coloured). Rose, white. June.
- *roseum* (rosy). Rose, white. June.
- *tripolium* (aster-leaved). 4. Pale yellow. August. 1700. Biennial.

GREENHOUSE EVERGREEN TRAILERS.

- M. abbreviatum* (short-jointed). 4. N. Holland. 1825.
- *acinaeiforme* (scimitar-formed). 4. Pink. 1714.
- *longum* (long). 4. Pink. August.
- *æquilatera'le* (equal-sided). 2. Pink. June. N. Holland. 1791.
- *attenuatum* (thin). 4. White. July. 1821.
- *australe* (southern). 4. Yellow. July. New Zealand. 1733.
- *barbatum* (bearded). 2. Pink. July. 1705.
- *calycinum* (long-calysed). 2. White. July. 1819.
- *caudens* (glittering). 4. White. June. 1820.
- *niridius* (greener). White. September.
- *clavellatum* (small-club-leaved). 4. Pink. June. N. Holland. 1803.
- *aggregatum* (crowded-leaved). 4. Pink. June. N. Holland. 1803.
- *minus* (smaller). 4. Pink. N. Holland. 1810.
- *crassifolium* (thick-leaved). 4. Pink. June. 1727.
- *debile* (weak). 4. 1824.
- *densum* (dense-bearded). 4. Pink. June. 1732.
- *edule* (eatable. *Hottentot* Fig). 4. Pink. July. 1690.
- *filamentosum* (thready). 4. Pink. May. 1732.
- *floribundum* (bundle-flowered). 4. Pink. July. 1704.
- *furfuraceum* (branny-twigged). 2. Blush. 1830.
- *gemmatum* (twin). 4. Pink. 1792.
- *glaucescens* (milky-greenish). 4. Pink. July. 1804.

- M. hirtellum* (dwarf-bristly). $\frac{1}{2}$. Pink. August. 1792.
— hirtidum (bristly). $\frac{3}{4}$. Purple. July. 1704.
— platyptalum (broad-petaled). $\frac{3}{4}$. Purple. July. 1820.
— hispidifolium (bristly-leaved). $\frac{1}{2}$. White. July. 1821.
— roseum (rosy). $\frac{1}{2}$. Pink. July. 1818.
— laecerum (jagged). $\frac{1}{2}$. Pink. July. 1811.
— laevigatum (polished). $\frac{3}{4}$. Pink. June. 1803.
— reptans (creeping). $\frac{1}{2}$. Pink. July. 1774.
— rigidicaule (stiff-stemmed). $\frac{1}{2}$. Pink. May. 1819.
— Rossi (Ross's). $\frac{3}{4}$. Pink. Van Diemen's Land. 1820.
— rubricaulle (red-stalked). $\frac{1}{2}$. Pale purple. June. 1802.
— densius (denser). $\frac{1}{2}$. Pink. 1818.
— subvirens (greenish). $\frac{1}{2}$. Pink. 1818.
— rubrocinatum (red-bordered). $\frac{1}{2}$. Pink. 1811.
— compressum (compressed). $\frac{1}{2}$. Pink. August.
— tenerum (tender). $\frac{1}{2}$. Pink. August.
— sarmentosum (twiggy). $\frac{1}{2}$. Red. April. 1805.
— Schollii (Scholl's). 1. Pink. May. 1810.
— serrulatum (saw-leaved). $\frac{1}{2}$. Pink. November. 1795.
— viridius (greener). $\frac{1}{2}$. Pink. November.
— simile (similar). 1. Pink. 1819.
— striatum (channelled-bristly). $\frac{3}{4}$. Pink. July. 1727.
— pallens (pale). $\frac{1}{2}$. White. July.
— subhispidium (slightly-bristly). $\frac{3}{4}$. Purple. July. 1704.
— subulatum (awl-leaved. Daisy-flowered). $\frac{1}{2}$. Pink. 1768.
— torquatum (torqued). $\frac{3}{4}$. Pink. August. 1820.
— validum (strong). $\frac{3}{4}$. Pink. May. 1824.
— virgatum (twiggy). $\frac{3}{4}$. Pink. March. 1793.

GREENHOUSE EVERGREEN SHRUBS.

- M. acuminatum* (pointed-leaved). 2. White. August. 1820.
— acutangulum (acute-angled). $\frac{1}{2}$. White. 1821.
— acutum (great-acute-leaved). $\frac{1}{2}$. Red. July. 1793.
— ascendens (ascending-tongue). $\frac{3}{4}$. Yellow. September. 1805.
— aduncum (hook-leaved). 1. Pink. February. 1795.
— agninum (lamp). $\frac{1}{2}$. Yellow. June. 1824.
— erectiusculum (more-erect-leaved). $\frac{1}{2}$. Yellow. May. 1824.
— minus (less). $\frac{1}{2}$. Yellow. May. 1824.
— albicaule (white-stemmed). 1. White. August. 1824.
— albidum (whitish). $\frac{1}{2}$. Yellow. July. 1714.
— albinoatum (white-marked). $\frac{1}{2}$. Yellow. September. 1823.
— alhipunctatum (white-dotted). $\frac{1}{2}$. September.
— aloides (aloe-like). $\frac{1}{2}$. Yellow. 1819.
— anatemicum (skeleton-leaved). $\frac{1}{2}$. White. September. 1803.
— fragile (brittle). $\frac{3}{4}$. White. 1803.
— ainceps (two-edged). $\frac{1}{2}$. Pink. June. 1811.
— pallidum (pale). $\frac{1}{2}$. Pale pink. June. 1819.
— angustum (narrow-tongued). $\frac{1}{2}$. Yellow. July. 1790.
— heterophyllum (various-leaved). $\frac{1}{2}$. Yellow. July. 1790.
— pallidum (pale). $\frac{1}{2}$. Yellow. July. 1790.
— asperum (rough). $\frac{1}{2}$. 1818.
— caerulea (bluish). $\frac{1}{2}$. 1820.
— curvatum (orange). $\frac{1}{2}$. Orange. July. 1793.
— aureum (golden). 1. Yellow. June. 1750.
— bellidiflorum (daisy-flowered). $\frac{1}{2}$. Red, white. July. 1717.
— subulatum (awl-shaped-leaved). $\frac{1}{2}$. Red. July. 1717.

- M. bellidiflorum viride* (pea-green). $\frac{1}{2}$. Red. July. 1717.
— libracetatum (double-bracted). $\frac{1}{2}$. Yellow. July. 1803.
— bicolorum (two-coloured). $\frac{1}{2}$. Orange. July. 1732.
— minus (smaller). $\frac{1}{2}$. Orange. July.
— patulum (spreading). 1. Orange. July.
— bidentatum (two-toothed). 1. Yellow. August. 1818.
— majus (larger). $\frac{1}{2}$. Yellow. August. 1818.
— bifidum (two-cleft). $\frac{1}{2}$. Yellow. November. 1795.
— bigibberatum (two-bunched). $\frac{1}{2}$. Yellow. August. 1820.
— blandum (mild). $\frac{1}{2}$. White. June. 1810.
— orachiatum (forked). $\frac{1}{2}$. Yellow. July. 1774.
— bracteatum (bracted). $\frac{1}{2}$. Yellow. August. 1774.
— brevicaulle (short-stemmed). $\frac{1}{2}$. Pale yellow. August. 1820.
— brevifolium (short-leaved). 1. Pale yellow. August. 1777.
— bulbosum (bulbous-rooted). $\frac{1}{2}$. Pink. August. 1820.
— calamiforme (reed-shaped). 1. White. August. 1717.
— canaliculatum (small-channel-leaved). 2. Pink. August. 1794.
— caninum (dog). $\frac{1}{2}$. Yellow. September. 1717.
— canum (hoary). $\frac{1}{2}$. Yellow. 1795.
— capitatum (headed). 1. Pale yellow. August. 1717.
— ramigerum (branchy). 1. Pale yellow. August. 1816.
— carinans (keeling). $\frac{1}{2}$. 1818.
— caulescens (stemmed-delta-leaved). $\frac{1}{2}$. Pink. June. 1731.
— clandestinum (secret). $\frac{1}{2}$. White. June. 1822.
— coccineum (scarlet). $\frac{1}{2}$. Scarlet. July. 1696.
— acutius (acuter-calyced). $\frac{1}{2}$. Scarlet. July.
— minus (smaller). $\frac{1}{2}$. Scarlet. July.
— compactum (compact). $\frac{1}{2}$. Yellow. November. 1780.
— compressum (compressed). $\frac{1}{2}$. Red. August. 1792.
— confertum (crowded-leaved). $\frac{1}{2}$. Pink. September. 1805.
— conspicuum (conspicuous). 1. Red. September. 1806.
— corallinum (coral). 1. Pink. May. 1820.
— cordifolium (heart-leaved). $\frac{1}{2}$. Pink. July. 1774.
— corniculatum (small-horned). 1. Pale yellow. April. 1732.
— isophyllum (equal-leaved). 1. Pale yellow. April. 1732.
— coruscans (glittering). 1. Pale yellow. August. 1812.
— crassicaule (thick-stemmed). $\frac{1}{2}$. Pale yellow. July. 1815.
— crassuloides (crassula-like). $\frac{1}{2}$. Pink. July. 1819.
— cruciatum (cross-leaved). $\frac{1}{2}$. Yellow. May. 1792.
— cutratum (cross-pruning-knife-leaved). $\frac{1}{2}$. Yellow. September. 1820.
— curvum (short-sheathed). $\frac{1}{2}$. White.
— majus (larger). $\frac{1}{2}$. White.
— minus (smaller). $\frac{1}{2}$. White.
— polatum (polished). $\frac{1}{2}$. White.
— curvifolium (curved-leaved). 1. Pink. October. 1792.
— curviflorum (curved-flowered). 2. White. June. 1818.
— cylindricum (cylindrical). $\frac{1}{2}$. Red. May. 1792.
— cymbifolium (boat-leaved). 1. Yellow. 1822.
— cymbiforme (boat-shaped). $\frac{1}{2}$. Yellow. 1792.

- M. decumbens* (lying-down). 1. Pale red. July. 1759.
 — *decepiens* (deceiving). 1. Pale yellow. August. 1820.
 — *deflexum* (bent-down). 1. Pink. August. 1774.
 — *defoliatum* (leafless). 2. July. 1820.
 — *deltoidum* (delta-leaved). 1½. Pink. May. 1731.
 — *denticulatum* (small-toothed). ¾. Yellow. April. 1793.
 — — *candidissimum* (whitest). ¾. Yellow. April.
 — — *glaucum* (milky-green). ¾. Yellow. April.
 — *depressum* (depressed-tongue). ¾. Yellow. October. 1795.
 — — *lividum* (livid). ¾. Yellow. October. 1819.
 — *difforme* (irregular). ¾. Yellow. August. 1732.
 — *dilatatum* (dilated). 3. White. July. 1820.
 — *diminutum* (diminished). ¾. Red. April. 1789.
 — — *cauciculatum* (small-stemmed). ¾. Red. April. 1789.
 — *diversifolium* (various-leaved). 1. Pale yellow. June. 1726.
 — — *atro-virens* (dark green). 1. Pale yellow. August.
 — — *brevifolium* (short-leaved). 1. Pale yellow. August.
 — — *glaucum* (milky-green). 1. Pale yellow. August. 1726.
 — — *laete-virens* (bright green). 1. Pale yellow. August.
 — *dolabriforme* (hatchet-formed). ¾. Yellow. June. 1705.
 — *duhium* (doubtful). 1. Pale yellow. August. 1800.
 — *echinatum* (hedgehog). 1. Yellow. August. 1774.
 — — *album* (white). ¾. White. August. 1774.
 — *elongatum* (elongated-tuberous). 1. Pale yellow. May. 1793.
 — — *fusiforme* (fusiform). 1. Pale yellow. May. 1793.
 — — *minus* (smaller). 1. Pale yellow. May. 1793.
 — *emarginatum* (notch-flowered). 2. Pink. July. 1732.
 — *erminum* (ermine). ¾. Yellow. May. 1824.
 — *expansum* (expanded-leaved). ¾. Pale yellow. July. 1705.
 — *fulcatum* (sickle-leaved). 1. Pink. July. 1727.
 — *falciforme* (sickle-shaped). 1½. Pink. July. 1805.
 — *fastigiatum* (peaked). 1½. White. August. 1794.
 — — *reflexum* (bent-back). 1½. White. August. 1792.
 — *felinum* (cat). ¾. Yellow. September. 1730.
 — *fibuliforme* (button-shaped). ¾. 1795.
 — *ficifolium* (fig-like). ¾. July. 1819.
 — *flicuule* (thread-stalked). 1½. Pink. September. 1800.
 — *fissum* (cleft-leaved). ¾. 1776.
 — *fulvum* (yellow). ¾. Yellow. August. 1820.
 — *flexile* (pliant). 1½. Pink. August. 1820.
 — *flexifolium* (pliant-leaved). 1½. Pink. October. 1820.
 — — *laete-virens* (lively-green). 1½. Pink. October. 1818.
 — *flexuosum* (zigzag). 1½. White. July. 1795.
 — *foliosum* (leafy). 3. Pink. September. 1802.
 — *forficatum* (scissor-leaved). 1½. Pink. September. 1758.
 — *formosum* (beautiful). 1. Crimson. August. 1820.
 — *fragrans* (fragrant). ¾. Yellow.
 — *fulvum* (tawny). 2. Tawny. July. 1820.
 — *gibbosum* (swollen). ¾. Red. February. 1780.
 — *gladiatum* (purple-sworded). 2. Pink. July. 1792.
 — *glaucum* (milkyish-green). 1½. Pink. July.
 — — *crassum* (thick-leaved). 1½. Pink. July.
 — *glaucum* (milky-green-leaved). 1½. Orange. June. 1696.
 — *glomeratum* (clustered). 1½. Pink. July. 1732.
 — *gracile* (slender). 1½. Red. September. 1794.
 — — *gracilius* (slenderer). 1. Red. September.
 — *grandiflorum* (large-flowered). ¾. Yellow. July. 1824.
 — *graniforme* (grain-shaped). ¾. Yellow. September. 1727.
 — *Haworthii* (Haworth's). 1. Brown. March. 1793.
 — *heteropetalum* (various-petaled). 2. Pink. June. 1794.
 — *heterophyllum* (various-leaved). ¾. Yellow. 1795.
 — *horizontalis* (horizontal-leaved). 2. Straw. July. 1795.
 — *hybridum* (hybrid). ¾. Yellow.
 — — *imbricans* (imbricating). 2. Pink. July. 1818.
 — *imbricatum* (imbricated). 3. White. July. 1792.
 — — *medium* (intermediate). 3. White. July.
 — — *viride* (green). 3. White. July.
 — *inequale* (unequal-calyced). 1. Orange. July. 1716.
 — *inclaudens* (encompassed). 1½. Pink. June. 1805.
 — *incomptum* (untrimmed). ¾. White. July. 1819.
 — *inconspicuum* (inconspicuous). ¾. Red. July. 1823.
 — *incurvum* (curled-in). 1½. Pink. July. 1802.
 — — *densifolium* (dense-leaved). 1½. Pink. June. 1809.
 — — *dilatans* (spreading-keeled). 1½. Pink. June.
 — — *palidus* (pale). 1½. Pink. June.
 — — *roseum* (rosy). 1½. Pink. June.
 — *inflexum* (bent-in). 1. Pink. June. 1819.
 — *instittum* (grafted). 1. Purple. September. 1790.
 — — *fulvo-croceum* (yellow and saffron). 1. Yellow. September. 1816.
 — — *minus* (smaller). ¾. Yellow. September.
 — *intonsum* (unshaved). ¾. Pink. July. 1824.
 — — *album* (white). ¾. Pink. July. 1824.
 — *juvencum* (rush-leaved). 1. Pink. September. 1800.
 — *laeve* (smooth-white-wood). 1½. August. 1774.
 — *lanceolatum* (spear-head-leaved). ¾. White. August. 1795.
 — — *roseum* (rosy). ¾. Pink. May. 1813.
 — *latum* (broad-tongued). ¾. Yellow. July. 1620.
 — — *brevi* (short). ¾. Yellow. July. 1802.
 — *leptaleon* (slender). 1½. Pink. August. 1819.
 — *lineolatum* (small-lined). ¾. Pink. August. 1819.
 — — *laeve* (smooth). ¾. July. 1819.
 — — *minus* (smaller). ¾. July. 1819.
 — — *nitens* (shining). ¾. August. 1819.
 — *linguiforme* (tongue-shaped). ¾. Yellow. July. 1732.
 — — *assurgens* (rising). ¾. Yellow. July. 1819.
 — — *prostratum* (lying-flat). ¾. Yellow. July.
 — — *rufescens* (reddish). ¾. Yellow. July. 1732.
 — — *subcruciatum* (slightly-crossed). ¾. Yellow. 1820.
 — *longispinatum* (long-spined). 1. Pale yellow. September. 1820.
 — *longum* (long-tongued). ¾. Yellow. September. 1725.
 — — *angustius* (narrower). ¾. Yellow. September.

- M. lo'ngum atto'lens* (elevating). 2. Yellow. September. 1819.
 ——— *decli'ne* (sloping). 2. Yellow. September.
 ——— *depre'ssum* (depressed). 2. Yellow. September.
 ——— *purpura'scens* (purplish). 2. Yellow. September. 1819.
 ——— *unca'tum* (hooked). 2. Yellow. September. 1819.
 ——— *lora'tum* (strap-shaped). 1. White. July. 1819.
 ——— *lo'reum* (strap-stalked). 1. Pale yellow. September. 1732.
 ——— *conge'stum* (crowded). 1. Pale yellow. September. 1805.
 ——— *lu'cidum* (shining). 1. Yellow. September. 1732.
 ——— *luna'tum* (crescent-leaved). 1. Pink. July. 1812.
 ——— *lupi'nium* (wolf). 1. Yellow.
 ——— *lute'olum* (yellowish). 1. Pale yellow. June. 1820.
 ——— *lu'teum* (yellow). 1. Pale yellow. June. 1824.
 ——— *macula'tum* (spotted-stalked). 1. Scarlet. 1732.
 ——— *magnipuncta'tum* (large-dotted). 1. Yellow. 1822.
 ——— *uncia'le* (inch-flowered). 1. Yellow. 1822.
 ——— *margina'tum* (white-edged). 1. White. May. 1793.
 ——— *ma'ximum* (largest-moon-leaved). 1. Pink. September. 1787.
 ——— *me'dium* (intermediate). 1. Yellow. June.
 ——— *mi'cans* (glittering). 1. Scarlet. 1704.
 ——— *microphyl'lum* (small-leaved). 1. Pink. May. 1795.
 ——— *mi'nimum* (smallest). 1. Pale yellow. October. 1796.
 ——— *minu'tum* (minute). 1. Pink. October. 1795.
 ——— *molle* (soft-leaved). 1. Pink. October. 1774.
 ——— *monitifo'rme* (bracelet-shaped). 1. White. May. 1791.
 ——— *mucrona'tum* (spine-pointed). 1. Pink. 1794.
 ——— *mucranifo'rme* (sword-shaped). 1. Yellow. July. 1821.
 ——— *multifo'rum* (many-flowered). 3. White. August. 1792.
 ——— *mi'nus* (smaller). 3. White. August.
 ——— *ni'tens* (shining). 3.
 ——— *pa'tens* (spreading). 3. White. August. 1820.
 ——— *ru'brum* (red). 3. Red. August.
 ——— *murica'tum* (point-covered-delta-leaved). 1. Pink. May. 1731.
 ——— *mi'nus* (small). 1. Pink. May.
 ——— *mu'rinum* (mouse). 1. Yellow. September. 1790.
 ——— *musculi'nium* (little-mouse). 1. Yellow. June. 1820.
 ——— *mustelli'nium* (weasel). 1. Yellow. June. 1820.
 ——— *muta'bile* (changeable). 1. Pink. August. 1792.
 ——— *ni'tidum* (bright). 2. Yellow. August. 1790.
 ——— *no'bile* (noble). 1. Yellow. July. 1822.
 ——— *noctifo'rum* (night-flowering). 2. White. July. 1714.
 ——— *ela'tum* (tall). 3. Scarlet. July. 1714.
 ——— *strami'neum* (straw-coloured). 2. Straw. July. 1732.
 ——— *nodifo'rum* (knot-flowered). 1. September. 1739.
 ——— *mucifo'rme* (nut-shaped). 1. 1790.
 ——— *obcone'llum* (small-conical). 1. White. June. 1786.
 ——— *obcorde'llum* (small-reversed-egg-shaped). 1. White. June. 1796.
 ——— *ohli'quum* (twisted). 1. Purple. August. 1819.
 ——— *obsubula'tum* (small-awl-shaped). 1. White. 1796.
 ——— *obtu'sum* (blunt-cloven). 1. Pale red. March. 1792.
 ——— *octophyl'lum* (eight-leaved). 1. Yellow. November. 1819.
 ——— *longiu'sculum* (rather-longer-leaved). 1. Yellow. November. 1774.
 ——— *ro'seum* (rosy). 1. Red. November. 1774.
 ——— *parvifo'lum* (small-flowered). 3. Purple. August. 1800.
 ——— *parvifo'lum* (small-leaved). 1. White. August. 1820.
 ——— *pa'tulum* (spreading). 1. Pink. October. 1811.
 ——— *perfolia'tum* (leaf-stem-pierced). 1. Purple. July. 1714.
 ——— *monaca'nthum* (one-spined). 1. Purple. July.
 ——— *pervi'ride* (very-green). 1. Red. February. 1792.
 ——— *pisifo'rme* (pea-shaped). 1. White. 1796.
 ——— *polya'nthum* (many-flowered). 1. Pink. August. 1803.
 ——— *polyphyl'lum* (many-leaved). 2. Pink. June. 1819.
 ——— *præpi'ngue* (very-fat). 1. Yellow. September. 1792.
 ——— *procu'mbens* (lying-down). 1. Pale yellow. April. 1820.
 ——— *produ'tum* (prolonged-calyxed). 1. Rose. May. 1822.
 ——— *pube'scens* (downy). 1. Red. February. 1792.
 ——— *pugionifo'rme* (dagger-shaped). 1. Pale yellow. August. 1714.
 ——— *bie'nnie* (biennial). 1. Pale yellow. August. 1714.
 ——— *ca'rneum* (flesh-coloured). 1. Pink. August. 1714.
 ——— *purpu'reum* (purple). 1. Purple. August. 1714.
 ——— *pulche'llum* (pretty). 1. Pink. April. 1793.
 ——— *revolu'tum* (rolled-back). 1. Pink. April.
 ——— *pulverule'tum* (powdery). 1. Pink. May. 1792.
 ——— *puncta'tum* (dotted-awl-leaved). 1. Red. July. 1793.
 ——— *purpu'reo-al'bum* (purplish-white). 1. White. August. 1824.
 ——— *pustula'tum* (blistered). 2. Yellow. August. 1818.
 ——— *pygma'eum* (pigmy). 1. Pink. 1805.
 ——— *quadri'fidum* (four-cleft). 1. Yellow. November. 1795.
 ——— *radia'tum* (rayed). 1. Red. September. 1732.
 ——— *ramulo'sum* (branchy). 1. Yellow. June. 1791.
 ——— *re'ctum* (straight). 1. White. July. 1819.
 ——— *relaxa'tum* (relaxed). 1. Pink. July. 1815.
 ——— *retrofle'xum* (bent-back). 1. Pink. July. 1724.
 ——— *ri'gidum* (stiff). 1. White. August. 1793.
 ——— *robu'stum* (robust). 1. Yellow. 1795.
 ——— *ro'seum* (rosy). 1. Pink. July. 1795.
 ——— *a'thum* (white-flowered). 1. White. July. 1819.
 ——— *linea're* (narrow-leaved). 1. White. July. 1819.
 ——— *roste'llum* (little-beaked). 1. White, pink. June. 1820.
 ——— *rostra'tum* (beaked). 1. Yellow. April. 1732.
 ——— *Sa'lmi'i* (Salm's). 1. Yellow. October. 1813.
 ——— *angustifo'lum* (narrow-leaved). 1. Yellow. October. 1823.
 ——— *semicrucia'tum* (half-crossed). 1. Yellow. October. 1813.
 ——— *salmo'nium* (salmon-coloured). 3. White. September. 1819.
 ——— *sca'brum* (rough). 1. Pink. July. 1731.
 ——— *purpu'reum* (purple). 1. Purple. July. 1731.
 ——— *scalpra'tum* (great-knife-shaped). 1. Yellow. September. 1714.

- M. scapigerum* (scape-bearing). ½. Yellow. August. 1723.
- *semicylindricum* (half-cylindric). ¾. Yellow. June. 1732.
- *serratum* (saw-keeled). 2. Pink. June. 1707.
- *speciosum* (showy). 1½. Scarlet. July. 1793.
- *spectabile* (striking). 1. Crimson. June. 1787.
- *spiniforme* (thorn-shaped). 1. Pink. September. 1793.
- *subaduncum* (rather-hooked). 1. Pink. September.
- *spinosum* (thorny). 1½. Pink. July. 1714.
- *spinuliferum* (spinule-bearing). 1. Pale yellow. August. 1794.
- *splendens* (shining). 1½. White. July. 1716.
- *stellatum* (starry-bearded). ¾. Pink. September. 1716.
- *stelligerum* (star-bearing). ¾. Pink. September. 1793.
- *stipulaceum* (stipuled). 1½. Pink. May. 1723.
- *strictum* (erect). 3. Yellow. 1795.
- *subcompressum* (sub-compressed). 1½. Purple. July. 1823.
- *minus* (smaller). 1. Purple. July. 1823.
- *subglobosum* (sub-globular). 1. Red. August. 1795.
- *sulcatum* (furrowed). 3. White. August. 1819.
- *surrectum* (very-erect). 1. Yellow. October. 1819.
- *brevifolium* (short-leaved). ¾. Yellow. October. 1819.
- *taurinum* (bull's-horn). ¾. Yellow. October. 1795.
- *tenuifolium* (delicate-perfoliate). 1½. White. August. 1792.
- *tenue* (slender). 1. 1819.
- *tenuiflorum* (slender-flowered). 2. Pink. September. 1820.
- *tenuifolium* (slender-leaved). 1. Scarlet. July. 1700.
- *erectum* (erect). 1½. Scarlet. July.
- *teretifolium* (round-leaved). ½. Pink. June. 1794.
- *teretiusculum* (rather-rounder). ½. Pink. 1794.
- *teretaceum* (tile-coloured). 3. Orange. August. 1820.
- *testiculare* (testicular). ½. White. October. 1774.
- *tigrinum* (tiger). ½. Yellow. October. 1790.
- *tortuosum* (twisted-leaved). ½. Pale yellow. August. 1705.
- *tricolorum* (three-coloured). 1. Yellow, red. October. 1794.
- *truncatellum* (small-truncated). ½. Pale yellow. July. 1795.
- *tuberosum* (tuberous-rooted). 3. Orange. April. 1714.
- *minus* (smaller). 1½. Orange. August. 1714.
- *tumidulum* (rather-swollen). 3. Pink. March. 1802.
- *minus* (smaller). 3. Pink. March. 1820.
- *umbellatum* (umbelled). 3. White. July. 1727.
- *anomalum* (anomalous). 3. White. July.
- *umbelliflorum* (umbel-flowered). 1½. August. 1820.
- *vaginatulum* (sheathed). 1½. White. July. 1802.
- *parviflorum* (small-flowered). 1½. White. July.
- *variabile* (variable). 1½. Yellow. July. 1796.
- *laevius* (smoother). 1½. Yellow. July. 1796.
- *varians* (varying). 1½. Pale yellow. July. 1706.
- *verruculatum* (small-warted). 1½. Yellow. May. 1731.
- *Candollei* (De Candolle's). 1½. Yellow. May.

M. versicolor (changeable-coloured). Pink. June. 1795.

- *villosum* (shaggy). 1. July. 1759.
- *violaceum* (violet). 2. Purple. July. 1820.
- *virens* (upright-green). ½. Pink. June. 1821.
- *viride* (green-perfoliate). 1. Pale purple. July. 1792.

— *vulpinum* (fox). ½. Yellow. September. 1795.

ME'SPILUS. Medlar. (From *mesos*, half, and *pilos*, a ball; referring to the shape of the medlar fruit. Nat. ord., *Appleworts* [Pomaceæ]. Linn., 12-Icosandria 2-Dipentagynia.)

Hardy deciduous trees, with white flowers. By seeds, which germinate the second season, after being sown when the fruit is ripe; by layers, and uncertainly by cuttings, but chiefly by grafting or budding on the Hawthorn, &c.; good, rich, loamy soil. See MEDLAR.

M. Germanica (German. Common). 12. June.

- England.
- *diffusa* (spreading). 12. June. Europe.
- *stricta* (upright). 12. June. Europe.
- Evergreen.
- *sylnestris* (wood). Europe.

— *lobata* (lobed-leaved). 15. May.

ME'SUA. (Named after *Mesue*, an Arabian botanist. Nat. ord., *Guttifers* [Clusiaceæ]. Linn., 16-Monadelphia 7-Dodecandria. Allied to *Calophyllum*.)

The sweet-scented flowers of *Mesua ferrea* are sold in all the Indian bazaars, by the name of Nagksur, and are as much esteemed as orange flowers are with us. Stove evergreen tree. Seeds in a hotbed, in March; cuttings of half-ripened stems in sand, under a bell-glass, in May, and with a little bottom-heat; loam and peat. Winter temp., 50° to 60°; summer, 60° to 85°.

M. ferrea (iron-wooded). 40. White. July. E. Ind. 1837.

METALASIA. (From *meta*, a change, *lasios*, hairy; referring to the older leaves losing their downy covering. Nat. ord., *Composites* [Asteraceæ]. Linn., 19-Syngenesia 2-Superflua. Allied to *Gnaphalium*.)

Greenhouse evergreens, from Cape of Good Hope, and with white flowers, except where otherwise stated. Cuttings in spring, in sandy peat; sandy peat, loam, and charcoal nodules, to keep the soil open. Winter temp., 40° to 45°.

- M. aurea* (golden). Yellow. June. 1816.
- *divergens* (widely-parted). 2. July. 1816.
- *fastigiata* (peaked). 3. June. 1812.
- *mucronata* (pointed). 2. June. 1824.
- *muricata* (point-covered). 2. June. 1824.
- *phylicoides* (phylica-like). June. 1816.
- *pu'gens* (stinging). June. 1815.
- *seriphoides* (seriphium-like). 3. Yellow. 1825.

METROSIDEROS. (From *metra*, heart-wood, and *sideros*, iron; referring to the hardness of the wood. Nat. ord., *Myrtle-blooms* [Myrtaceæ]. Linn., 12-Icosandria 1-Monogynia. Allied to *Callistemon*.)

Greenhouse evergreens. Cuttings of small young side-shoots in April, in sand, under a bell glass, in a close pit or frame, but without heat; peat and loam, equal proportions, with a little white sand

and sifted, broken crocks. Winter temp., 35° to 45°. Most of them should be tried on a conservative wall.

M. angustifolia (narrow-leaved). 20. Yellow. Cape of Good Hope. 1787.

— *aspera* (rough). Cape of Good Hope. 1824.

— *capitata* (headed). 5. Pink. Cape of Good Hope. 1824.

— *corifolia* (coris-leaved). 4. White. N. Holland.

— *glomulifera* (heaped-flowered). 15. Yellow, green. May. N. S. Wales. 1805.

— *robusta* (robust). 80. Scarlet. June. New Zealand. 1845.

— *vera* (true. Iron-wood). 20. Yellow, green. April. E. Ind. 1819.

METTERN'CHIA. (In honour of the Austrian Prince Metternich-Winneburg. Nat. ord., *Nightshades* [Solanaceæ]. Linn., 5-Pentandria 1-Monogynia.)

An evergreen stove shrub. For culture, see culture of the evergreen species of *LISYANTHUS*.

M. principis (princely). 3. White. August. Brazil. 1854.

MEXICAN LILY. *Hippeastrum regium*.

MEXICAN POPPY. *Argemone*.

MEXICAN TEA. *Psoralea Mexicana*.

MEXICAN THISTLE. *Erythrolæna*.

MEXICAN TIGER-FLOWER. *Tigridia pavonia*.

MICE. Various plans have been suggested to preserve peas and beans when sown from the ravages of mice. We believe we have tried them all. Dipping the seeds in oil, and then rolling them in powdered resin; putting small pieces of furze in the drills and over the rows after the seed has been sown, but before covering with the earth—were both partially successful; but the mode attended with the most complete safety has always been that of covering the surface of the soil over the rows, to the depth of full an inch, and six inches wide, with finely-sifted coal-ashes. The mice will not scratch through this; and it has the additional advantage, by its black colour absorbing the solar heat, of promoting the early vegetation of the crop.

MEZE'REON. *Daphne Mezerium*.

MICHAELMAS DAISY. *Aster*.

MICHAUX'IA. (Named after A. Michaux, a French botanist. Nat. ord., *Bellworts* [Campanulaceæ]. Linn., 8-Octandria 1-Monogynia. Allied to Campanula.)

Hardy biennials. Seeds in the open border; in damp situations they are apt to fog off in winter; a dry, elevated situation is the best remedy; even there, in very severe weather, an evergreen branch stuck beside them will be an advantage.

M. campanuloides (campanula-like). 4. Pale red. July. Levant. 1787.

— *decandra* (ten-stamened). 3. Light blue. July. Persia. 1829.

— *lavigata* (smooth-stemmed). 3. White. July. Persia. 1827.

MICHE'LIA. (Named after P. A. Micheli, an Italian botanist. Nat. ord., *Magnoliaceæ* [Magnoliaceæ]. Linn., 13-Polyandria 6-Polygynia.)

Stove evergreen tree. Cuttings of half-ripened shoots in summer, in sand, under a glass, and in heat; sandy loam and leaf-mould. Winter temp., 48° to 60°; summer, 60° to 85°.

M. Champaca (Champaca). 20. Yellow. E. Ind. 1779.

MICO'NIA. (Named after D. Micon, a Spanish botanist. Nat. ord., *Melastomads* [Melastomaceæ]. Linn., 10-Decandria 1-Monogynia. Allied to Blakea.)

Stove evergreens, with white flowers, unless otherwise specified. Cuttings of half-ripened shoots in sandy soil, under a bell-glass, and in heat; sandy peat and loam, with a few bits of cow-dung and charcoal. Winter temp., 48° to 60°; summer, 60° to 85°.

M. acinodendron (acinodendron). 6. Purple. Jamaica. 1804.

— *angustata* (narrow). 5. Trinidad. 1820.

— *grandifolia* (large-leaved). 20. Trinidad. 1820.

— *impatiolalis* (stalkless-leaved). 4. W. Ind. 1822.

— *lavigata* (smooth). 6. W. Ind. 1815.

— *longifolia* (long-leaved). 4. Guiana. 1817.

— *purpurea* (purplish-berried). 4. Guiana. 1817.

— *rubescens* (ruddy). 6. S. Amer. 1818.

— *tenuifolia* (fine-leaved). 6. S. Amer. 1818.

— *tetrandra* (four-stamened). 2. Jamaica. 1815.

— *trinervis* (three-nerved). 4. July. Jamaica. 1795.

MICRA'NTHEMUM. (From *mikros*, small, and *anthos*, a flower. Nat. ord., *Figworts* [Scrophulariaceæ]. Linn., 2-Diandria 1-Monogynia.)

Evergreen perennial. Cuttings under a hand-light; division of the plant in spring; sandy peat, and a little loam; requires a pit or a dry, sheltered place in winter.

M. orbiculatum (round-leaved). 1. White. May. Carolina. 1826.

MICROLE'PIA. (From *mikros*, small, and *lepis*, a scale; the appearance of the spore, or seed-cases. Nat. ord., *Ferns* [Polypodiaceæ]. Linn., 24-Cryptogamia 1-Filices.)

Stove Ferns, with brown spores. See FERNS.

M. alata (winged). April. Jamaica.

— *cristata* (crested). April. Isle of Luzon.

— *pinnata* (leafleted). May. Isle of Luzon.

— *rhomboides* (diamond-shaped). April. N. Holland. 1836.

— *trichostrica* (hairy-spiked). April. Samaria.

MICROL'IA. (From *mikros*, small, and *alikia*, stature; dwarf plants. Nat. ord., *Melastomads* [Melastomaceæ]. Linn., 10-Decandria 1-Monogynia. Allied to *Rhexia*.)

Stove plants, with purple flowers, in June. Seeds, divisions in spring, and cuttings of small young shoots of *recurva*, under a bell-glass, in

heat; sandy peat, with pieces of charcoal and a few fibry lumps of loam. Winter temp., 55° to 60°; summer, 60° to 85°.

M. bivalvis (two-valved). ♂. Trinidad. 1822. Annual.

— *brevifolia* (short-leaved). 1. Guiana. 1825. Annual.

— *recurva* (curled-back). 1. Trinidad. 1820. Herbaceous.

MICROLOMA. (From *mikros*, small, and *loma*, a fringe; flowers fringed. Nat. ord., *Asclepiads* [*Asclepiadaceæ*]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Asclepias*.)

Greenhouse evergreen twiners, from the Cape of Good Hope. Stiff little shoots, but young, as cuttings, in sand, under a bell-glass, in a close pit, in May; sandy loam, a little fibry peat, and dried leaf-mould. Winter temp., 40° to 50°.

— *lineare* (narrow-leaved). 3. White. July. 1823. — *sagittatum* (arrow-leaved). Green, purple. July. 1775.

MICROMEIA. (From *mikros*, small, and *meris*, a part; referring to the flowers. Nat. ord., *Labiates* [*Lamiaceæ*]. Linn., 14-*Didynamia* 1-*Gymnospermia*. Allied to *Melissa*.)

Evergreen shrubs, with purple blossoms, except where otherwise specified. Cuttings under hand lights, in sandy soil, in a shady place, in May; common garden, light soil; a high, sheltered position, or the protection of a cold pit, in winter.

M. approxima'ta (close-leaved). June. Mediterranean. 1822.

— *australis* (southern). N. S. Wales.

— *Græca* (Grecian). ♀. June. Greece. 1759.

— *densiflora* (thickly-flowered). June. South Europe. 1822.

— *Juliana* (St. Julian's). ♂. Pale red. July. Mediterranean. 1596.

— *hirsuta* (hairy). June. Sicily. 1822.

— *marifolia* (cat-thyme-leaved). 1. Blue. Spain. 1800.

— *obovata* (reversed-egg-leaved). 2. July. Jamaica. 1783.

— *Teneriffæ* (Teneriffe). 1. May. Teneriffe.

— *va'ria* (various). July. Canaries. 1806.

MICROPE'RA. (From *mikros*, small, and *pera*, a pouch; the pouch-like labelum, or lip. Nat. ord., *Orchids* [*Orchidaceæ*]. Linn., 20-*Gynandria* 1-*Monandria*. Allied to *Saccolabium*.)

Stove orchids. The ground species require to be grown in loose, open soil, in a pot; the others in a shallow basket, or on a moss-covered block of wood. Winter temp., 55°; summer, 60° to 85°.

TERRESTRIAL, OR GROUND.

M. Banksii (Banks'). New Zealand.

— *media* (middle-sized). 2. Pale green, white. King George's Sound. 1823.

— *parviflora* (small-flowered). 1. Pale green, white. September. Port Jackson. 1828.

EPIDPHYTAL.

M. pallida (pale). Pale yellow. Sylhet.

MICROSPE'RA. (From *micros*, small, and *sperma*, a seed; the seeds being very

minute. Nat. ord., *Loasads* [*Loasaceæ*]. Linn., 18-*Polyadelphia* 2-*Polyandria*.)

Greenhouse annuals. To be cultivated like the Chinese Primrose. See *PRIMULA*.

M. Bartonioi'des (Bartonia-like). ♀. Lemon. August. Mexico. 1849.

— *lobata* (lobed).

MIGNONETTE. *Reseda odora'ta*.

Soil.—Light loam, well drained, and manured with leaf-mould.

Sowing in the open ground, from the end of April to the beginning of July, will produce a sure succession of blooms through the year. If allowed to seed, and the soil suits it, mignonette will continue to propagate itself. If not allowed to ripen its seed, the same plants will bloom for two or more seasons, being a perennial in its native country.

For *Pot-Culture* and the production of flowers to succeed those of the open-ground plants, and to bloom in winter, sow once in August, and again in September. The soil as above, well drained, and pressed into 5-inch pots; cover the seed a fourth of an inch. Thin the seedlings to three in a pot. Water sparingly. When mignonette is deficient of perfume, it is because the temperature is too low.

Tree-Mignonette.—About the end of April is the best time to sow seeds for this purpose; and as the little tree of mignonette will be expected to last in good health for half a dozen years at least, lay a good foundation to begin with. A rich compost of mellow loam, and one-third very rotten cow-dung, with a little sand; and to keep this from getting too close, a handful of dry lime-mortar added to each pot of 8-inch diameter, and so in proportion for larger or smaller pots; the mortar to be in lumps of the size of peas. Bones, charcoal, or even powdered crocks would answer the same purpose, only the mignonette is so much sweeter from the lime-rubbish or dry mortar. Cow-dung being very liable to turn sour, the mortar is a better corrector of this than even the charcoal. Take as many 3-inch pots as you want plants; drain them with pieces of mortar, and over that a little of the roughest of your compost; fill up nearly level with the top of the pot, and place three seeds in the very middle of each pot, and nine or ten seeds all over the surface; if you just cover them with earth it is enough, and press them down very tight. Water them, and put them up in

the window, or greenhouse, and if the seeds are good they will be up in less than ten days; give them abundance of air, and no forcing. When the day is at all fine, put them outside the window from ten to three in the afternoon. They will not stand much water; a gentle shower with a rose would suit them very well, and the best time to give it them is in the morning, when you turn them outside, as they will have time to drain and dry properly before you take them in for the night. If the three seeds in the centre come up, the weakest of the three must be pulled out as soon as you can get hold of it; the rest to be thinned one-half. The reason for sowing so many seeds in one pot, and for thus thinning them out afterwards, is to make sure of one good plant; if the middle one turns out to be so, that must be selected; but if not, you must choose the strongest and most promising from among the rest; yet be in no great hurry to pull them all out but one; as long as three or four have room, leave them. When you have fixed on the one that is to form the future tree, place a neat little stick down by the side of it, a foot long, and pushed down to the bottom of the pot. When the plant is two inches long, tie it loosely to this stick with a piece of worsted thread. Keep tying it as regularly as it grows, and when it reaches the top of the stick give it a longer one, that is, if you wish a long stem. Some people grow them up to three, or even four, feet and more. Suppose we say only a foot high for a couple of them, as they must all go in pairs; eighteen inches for the next couple, and two feet for a third lot; you would then be better able to judge which size would suit your window best; and as soon and as often as side-branches issue forth from the stem of your tree, you must stop them at the second joint. Some people, who do not know the value of leaves, cut off the side-shoots close to the stem at once; but the substance of the stems and trunks of all trees, and mignonette-trees among the rest, is first formed by the leaves. In the second year you will cut off more than the half of these side-spurs, beginning at the bottom, and only taking off a pair at a time, and in ten days or a fortnight another couple, and so on progressively.

There must be no flowers the first season, at least as long as there are

some out in the borders. After the middle of October you may let your trees bloom all the winter, but before that nip them off as fast as they appear. When the first little pots are full of roots, say about Midsummer, shift the plants into 5-inch pots, which is the next largest size; and if they have done well they may want another shift by the end of July, but never shift them after the middle of August, because, if we should have a cold autumn, they would not fill the pots with strong, healthy roots.

MIKA'NIA. (Named after *J. Mikan*, professor of botany at Prague. Nat. ord., *Compositæ* [*Asteraceæ*]. Linn., 19-*Syngenesia* 1-*Æqualis*. Allied to *Eupatorium*.)

Stove evergreen twiners, with white flowers, blooming in August, except where otherwise mentioned. Cuttings of half-ripened shoots in sand, under a bell-glass, and in heat; rich, sandy loam. Winter temp., 49° to 55°; summer, 60° to 80°.

M. una'ra (bitter). 6. Guiana. 1813.

— *Guaco* (Guaco). 6. Pale blue. S. Amer. 1823.

— *opi'fera* (opium-bearing). 6. Brazil. 1823.

— *sca'ndens* (climbing). 6. N. Amer. 1714.

— *suave'olens* (sweet-scented). 6. S. Amer. 1823.

MILDEW, whether on the stems of the wheat, or on the leaves of the chrysanthemum, pea, rose, or peach, appears in the form of minute fungi, the roots of which penetrate the pores of the epidermis, rob the plant of its juices, and interrupt its respiration. There seems to be every reason to believe that the fungus is communicated to the plants from the soil. Every specimen of these fungi emits annually myriads of minute seeds, and these are wafted over the soil by every wind, vegetating and reproducing seed, if they have happened to be deposited in a favourable place, or remaining until the following spring without germinating. These fungi have the power of spreading also by stooling, or throwing out offsets. They are never absent from a soil, and at some period of its growth are annually to be found upon the plants liable to their inroads. They are more observed in cold, damp, muggy seasons, because such seasons are peculiarly favourable to the growth of all fungi. The best of all cures is afforded by the application of flowers of sulphur in some form, either by dusting the sulphur over the parts affected, or a sulphur paint, for which a recipe is given at page 233; merely clay, water, and

flowers of sulphur, however, are sufficient, and not so injurious to leaves. *Uredo rosæ*, *Puccinia rosæ*, and *Cladosporium herbarum* are the mildew fungi of the rose-tree; *Oidium erysiphoides*, of the peach-tree; *Oidium Tuckeri*, of the vine; *Glaeosporium concentricum*, of the cabbage; and *Erysiphe communis*, of the pea. Of course there are many others.

The most important point for subduing the mildew fungus is to apply the sulphur immediately it appears. To prevent its occurrence, nothing is so effectual as keeping the roots and the leaves equally active by a due amount of warmth and moisture.

MILFOIL. *Achille'a*.

MILK-VETCH. *Astra'galus*.

MILK-WOOD. *Bro'simum spu'rium*.

MILKWORT. *Poly'gala*.

MILLA. (Named after J. Milla, a gardener to the Spanish court. Nat. ord., *Lilyworts* [Liliacæ]. Linn., 6-*Hexandria* 1-*Monogynia*. Allied to *Caloscordium*.)

Half-hardy little bulbs, with white flowers, which succeed in a deep, front border of light soil; offsets when in a dormant state.

M. biflo'ra (two-flowered). 1½. May. Mexico. 1826.
— *uniflo'ra* (one-flowered). ¾. February. Buenos Ayres. 1832.

MILLINGTONIA. (Named after Sir T. Millington, professor of botany at Oxford. Nat. ord., *Bignoniads* [Bignoniacæ]. Linn., 14-*Didynamia* 2-*Angiospermia*.)

Stove evergreen tree. Cuttings of half-ripened shoots in sand, under a bell-glass, and in bottom-heat; sandy loam and peat. Winter temp., 45° to 55°; summer, 60° to 85°.

M. simplicifolia (simple-leaved). 20. Yellow. E. Ind. 1828.

MILLPEDE. See JULUS.

MILTONIA. (Named after the Earl Fitzwilliam. Nat. ord., *Orchids* [Orchidacæ]. Linn., 20-*Gynandria* 1-*Monandria*. Allied to *Brassia*.)

Stove orchids, from Brazil, except where otherwise mentioned. Divisions in spring; shallow baskets in moss, sphagnum, &c., or fixed to a block of wood, and then this block fastened across the top, inside of a pot. Winter temp., 60°; summer, 60° to 90°.

M. bicolor (two-coloured). White, red. 1839.
— *can'dida* (white-tipped). 2. Yellow and brown. March. 1830.

— *flavescens* (yellowish-tipped). 2. White, yellow. June. 1837.

— *grandiflo'ra* (large-flowered). 2. Brown, white. December. 1837.

— *Clowesii* (Rev. J. Clowes's). 1. Yellow, brown. 1840.

— *pub'unda* (pale). Yellow, brown. 1839.

— *cuneata* (wedge-tipped). 1. Yellow, purple. March. 1843.

— *flav'a* (yellow-flowered). Yellow, July. 1848.

M. Karwi'nskii (Karwinski's). 3. Yellow, brown. August. Mexico. 1839.

— *odora'ta* (sweet-scented). 1843.

— *Russellia'na* (Duke of Bedford's). Brown, lilac. December. Rio Janeiro. 1835.

— *stella'ta* (star-flowered). White. February. 1839.

— *specta'bilis* (showy). 1. White, violet. July. 1835.

— *a'tro-purpu'rea* (dark purple). Rio Janeiro.

— *colora'ta* (high-coloured). Rose. 1838.

MIMETES. (From *mimos*, a mimic; referring to its resemblance to allied genera. Nat. ord., *Proteads* [Proteacæ]. Linn., 4-*Tetrandria* 1-*Monogynia*. Allied to *Leucospermum*.)

Greenhouse evergreen shrubs, from the Cape of Good Hope. Cuttings of the ripened shoots towards autumn, or in the spring, before fresh growth commences, in sand, under a glass, but without bottom-heat, at least until a swelling takes place at their base; peat and a little loam. Winter temp., 38° to 45°.

M. capitula'ta (small-headed). Red. June. 1822.

— *cuculla'ta* (hooded-leaved). 2. Purple. 1789.

— *divarica'ta* (spreading). 2½. White. July. 1795.

— *Hartog'ii* (Hartog's). 5. July. 1824.

— *hi'ra* (hairy). 3½. Red. July. 1774.

— *palu'stris* (marsh). 1. Purple. July. 1802.

— *pauciflo'ra* (few-flowered). 2½. Red. July. 1818.

— *purpu'rea* (purple). 2. Purple. November. 1789.

— *vaccini'folia* (whortleberry-leaved). 3. 1800.

MIMO'SA. (From *mimos*, a mimic; referring to the irritability of the leaves, as if imitating animal sensibility. Nat. ord., *Leguminous Plants* [Fabacæ]. Linn., 23-*Polygamia* 1-*Monæcia*.)

Stove evergreens, except *pub'ica*, commonly called the Sensitive Plant, which is an annual, and *vi'va*, which is herbaceous. Seeds sown in a hotbed, in the spring; cuttings also of young shoots, getting rather firm at the base, in sandy soil, and in heat; sandy loam, leaf-mould, and a little peat. Winter temp., 50° to 55°; summer, 60° to 85°. The foliage of most is beautifully leafleted, and many species more or less sensitive to the touch; most of them furnish fine examples of what is termed *sleep* in plants, as the leaflets fold together at night.

M. angula'ta (angled-branched). White. June. Brazil. 1826.

— *Barclaya'na* (Barclay's). 1. Madagascar. 1824.

— *ca'sta* (chaste). 2. Pale yellow. July. S. Amer. 1741.

— *cili'a'ta* (hair-fringed). White. June. Brazil. 1824.

— *ferrugi'nea* (rusty). 1. E. Ind. 1818.

— *floribu'nda* (bundle-flowered). 1. Pink. June. Cumana. 1824.

— *interme'dia* (intermediate). Rose. April. Caraccas. 1825.

— *latispino'sa* (broad-spined). 3. White. September. Madagascar. 1823.

— *marginat'a* (bordered). Pink. Mexico.

— *obtusifo'lia* (blunt-leaved). 3. Red. June. Brazil. 1816.

— *polyda'ctyla* (many-fingered). 1½. Purple. June. Guiana. 1822.

— *pubibu'nda* (blushing). 2. Pale red. Bahia. 1818.

— *pub'ica* (chaste. Humble-plant). 1. White. June. Brazil. 1638.

- M. rubricaulis* (red-stalked). 3. Pale yellow. June. E. Ind. 1799.
 — *sensitiva* (sensitive). 1½. Pink. June. Brazil. 1648.
 — *strigosa* (bristled). 1. Purple. June. S. Amer. 1818.
 — *Uraguensis* (Uruguay). 2. Red. June. Buenos Ayres. 1840.
 — *viscida* (clammy). 2. Red. Brazil. 1825.
 — *vi'va* (lively). 1½. Purple. August. Jamaica. 1739.

MIMULUS. Monkey-Flower. (From *mimo*, an ape; in reference to the ringent or gaping mouth of the flower. Nat. ord., *Fidivorts* [Scrophulariaceæ]. Linn., 14-*Digynia* 2-*Angiospermia*.)

Common soil, provided it be moist; divisions, cuttings, and seeds. A few, like *roseus*, require the protection of a pit in winter; but where that is not available, seeds of them, sown in March or April, will bloom in summer and autumn.

HARDY ANNUALS.

- M. floribundus* (bundle-flowered). ¾. Yellow. August. N. Amer. 1826.
 — *parviflorus* (small-flowered). ¾. Yellow. Chili. 1824.

HALF-HARDY HERBACEOUS.

- M. laniatus* (woolly). 1½. Yellow. June. N. Amer. 1826.
 — *roseus* (rosy). 1. Rose. August. California. 1831.
 — *tricolor* (three-coloured). Pink, crimson. June. California. 1848.

HARDY HERBACEOUS.

- M. alatus* (winged). 1. Light blue. July. N. Amer. 1783.
 — *cardinalis* (cardinal-like). 2. Scarlet. June. California. 1835.
 — *glabratus* (smoothed). Yellow. June. Mexico. 1827.
 — *guttatus* (spotted-flowered). 1½. Yellow. July. N. Amer. 1812.
 — *Lewisii* (Lewis's). ¾. Pale purple. August. Missouri. 1824.
 — *luteus* (yellow). ¾. Yellow. July. Chili. 1826.
 — *rimularis* (rivulet). ¾. Yellow. July. Chili. 1826.
 — *Younganus* (Mr. Young's). ¾. Yellow-spotted. July. Chili. 1833.
 — *moschatatus* (musk-plant). ¾. Yellow. August. Columbia. 1826.
 — *propinquus* (related). ¾. Yellow. April. N. Amer. 1827.
 — *ringens* (gaping). 1. Light blue. July. N. Amer. 1759.
 — *variegatus* (variegated). 1. White, rosy. June. Chili. 1831.

MIMUSOPS. (From *mimo*, an ape, and *ops*, a face; fancied resemblance of the flowers. Nat. ord., *Sapotads* [Sapotacæ]. Linn., 8-*Octandria* 1-*Monogynia*. Allied to *Bassia*.)

Mimusops Ele'ngi is an Indian fruit-tree; and the sweetish gum of the *M. Ka'ki* is eaten by the natives. Stove, white-flowered evergreen trees, from the East Indies. Cuttings of half-ripened shoots in sand, under a glass, and in heat; sandy loam and leaf-mould. Winter temp., 48° to 55°; summer, 60° to 80°.

- M. Ele'ngi* (Elen'gi). 15. 1795.
hexandra (six-stamened). 10. 1804.
Ka'ki (Kaki). 10. 1796.

MI'NA. (Named after *F. X. Mina*, a Mexican minister. Nat. ord., *Bindweeds* [Convolvulacæ]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Ipomæa*.)

Greenhouse annual. Seeds sown in a hotbed, in spring, potted and re-potted, and hardened off for flowering in the greenhouse; sandy loam, peat, and leaf-mould.

- M. lobata* (lobed). 6. Red, yellow. June. Mexico. 1841.

MINT. See *ME'NTHA*.

MIRA'BILIS. Marvel of Peru. (From *mirabilis*, wonderful; as everything was at first considered that came from America. Nat. ord., *Nyctagos* [Nyctagynacæ]. Linn., 5-*Pentandria* 1-*Monogynia*.)

Greenhouse herbaceous perennials. By seeds sown in a hotbed, in spring, and plants hardened off by degrees to stand in the open border; by their fusiform (carrot-shaped) roots, taken up and preserved in sand or dry moss during the winter; rich, sandy loam. May be managed similarly to a *Dahlia*.

- M. dichotoma* (forked). 2. Yellow. July. Mexico. 1640.
 — *hybrida* (hybrid). 2. White. July. 1813.
 — *jalap'a* (jalap). 2. Red. July. W. Ind. 1596.
 — *alba* (white). 2. White. July. W. Ind. 1596.
 — *fla'na* (yellow). 2. Yellow. July. W. Ind. 1596.
 — *rubro-alba* (red and white). 2. Red, white. July. W. Ind. 1596.
 — *rubro-fla'va* (red and yellow). 2. Red, yellow. July. W. Ind. 1596.
 — *longiflora* (long-flowered). 2. White. July. Mexico. 1759.
 — *carnea* (flesh-coloured). 2. Pink. August. Germany.
 — *violacea* (violet-coloured). 2. Pink. August. Germany.
 — *sua'veolens* (sweet-scented). 1½. White. July. Mexico. 1824.

MIRBE'LIA. (Named after *C. F. B. Mirbel*, a physiological botanist of Paris. Nat. ord., *Leguminous Plants* [Fabacæ]. Linn., 10-*Decandria* 1-*Monogynia*. Allied to *Pultenæa*.)

Greenhouse evergreens, from New Holland. Cuttings of the half-ripened shoots in May, under a bell-glass, and in sand, over well-drained, sandy peat; sandy peat, with a few nodules of fibry loam and charcoal. Winter temp., 40° to 48°.

- M. Baxteri* (Baxter's). 2. Yellow. 1825.
 — *dilatata* (wide-leaved). 3. Yellow. July. 1803.
 — *floribunda* (many-flowered). 2. Purple. March. 1838.
 — *grandiflora* (large-flowered). 2. Yellow. June. 1825.
 — *Meisneri* (Meisner's). 2. Reddish-purple. May.
 — *pu'ngens* (stinging). 2. Yellow. June. 1824.
 — *reticulata* (netted). 3. Yellow. June. 1792.
 — *speciosa* (showy). 2. Purple. June. 1824.

MISTLETOE. (*Viscum album*.) Name derived from the Saxon for the same plant, *Miselta*. The best months for sowing it are February and March. Make

two cuts in the shape of the letter V, on the under-side of the branch of an apple-tree. Make the cuts quite down to the wood of the branch; raise the tongue of bark made by the cuts, but not so as to break it, and put underneath one or two seeds freshly squeezed from the Mistletoe berry. Let the tongue back into its place, and the process is completed. If the seed is good, the seedlings, not unlike cucumber plants, soon appear. They remain attached to the branch, and do not seem to injure the tree.

Open the bark underneath the branch to receive the seed, because it is thus preserved from an accumulation of rain water, and is shaded from the sun.

The Mistletoe may also be propagated by grafts; and it is said that it will succeed upon any tree. It is certainly found upon the pine in Germany; but we question very much whether it would live upon the walnut. It will grow, yet with difficulty, upon the oak; but it readily takes upon the apple, pear, poplar, and willow. Mr. Beaton says (*Gard. Mag.* iii. 207, N. S.), the first weeks of May are best for grafting the Mistletoe, and it should never be inserted less than five nor more than ten feet from the ground. Make an incision in the bark of the tree, and insert into it a thin slice of Mistletoe, having a bud and one leaf at the end. Grafts larger than half an inch in diameter require a notch to be cut out of the branch, the incision to receive the scion being made below this notch, and a shoulder left on the scion to rest on the notch, as in crown-grafting. Budding the Mistletoe may also be practised in the middle of May. Mr. Beaton says it is only a modification of grafting, a heel of wood being retained below the bud for insertion.

MITCHELLA. (Named after *Dr. Mitchell*, of Virginia. Nat. ord., *Cinchonads* [Cinchonaceæ]. Linn., 4-Tetrandria 1-Monogynia.)

Hardy herbaceous creeper. Division, cuttings under a hand-light, and layering the running stems; sandy, fibry peat, either in a sheltered American border, or in a pot protected like the generality of alpine plants.

M. repens (creeping). †. White. June. N. Amer. 1731.

MITE. See ACARUS.

MITE'LLA. (The diminutive of *mitra*, a mitre; referring to the shape of the seed-pods. Nat. ord., *Saxifragas* [Saxifra-

gaceæ]. Linn., 10-Decandria 2-Digynia. Allied to *Heuchera*.)

Hardy, white-flowered, herbaceous perennials, from North America. Division of the roots in spring; common garden-soil. Pretty for border or rock-work.

M. cordifolia (heart-leaved). †. May. 1812.

— *diphylla* (two-leaved). †. April. 1731.

— *nuda* (naked-stemmed). †. July. 1758.

— *pentandra* (five-stamened). †. Yellow. June. 1827.

— *prostrata* (lying-down). †. May. 1818.

— *trifida* (three-cleft-petaled). †. May. 1827.

MITRACARPUM. (From *mitra*, a mitre, and *karpos*, a fruit. Nat. ord., *Cinchonads* [Cinchonaceæ]. Linn., 4-Tetrandria 1-Monogynia. Allied to *Richardsonia*.)

Stove annuals, with white flowers. Seeds in a hotbed, in March, potted and hardened off to bloom in the stove and greenhouse during the summer.

M. Fischeri (Fischer's). 1. July. Jamaica. 1821.

— *hirtum* (hairy). †. July. Jamaica. 1818.

— *stylisum* (long-styled). 1. August. Manilla. 1819.

— *villosum* (shaggy). †. July. Jamaica. 1816.

MITRARIA. (From *mitra*, a mitre; referring to the seed-pod. Nat. ord., *Gesnerworts* [Gesneraceæ]. Linn., 14-Didymia 2-Angiospermia. Allied to *Columnnea*.)

Evergreen shrub. Cuttings of the half-ripened shoots in sand, under a bell-glass, in summer; better-ripened shoots under a hand-light, in a shady place. A beautiful spring plant for the greenhouse, and supposed to be hardy enough for all sheltered places out of doors; sandy peat and fibry loam.

M. coccinea (scarlet). 4. Scarlet. July. San Carlo de Chiloe. 1848.

MIXTURE OF SOILS is one of the most ready and cheapest modes of improving their staple, and thus rendering them more fertile; and upon the subject we have nothing to add to the following excellent remarks of Mr. Cuthbert Johnson:—

"I have witnessed, even in soils to all appearance similar in composition, some very extraordinary results from their mere mixture. Thus, in the gravelly soils of Spring Park, near Croydon, the ground is often excavated to a depth of many feet, through strata of barren gravel and red sand, for the purpose of obtaining the white or silver sand which exists beneath them. When this fine sand is removed, the gravel and red sand are thrown back into the pit, the ground merely levelled, and then either let to cottagers for gardens, or planted with forest trees. In either case the effect is remarkable all kinds of either fir or deciduous trees will now vegetate with increased luxuri-

ance; and in the cottage-gardens thus formed, several species of vegetables, such as beans and potatoes, will produce very excellent crops, in the very soils in which they would have perished previous to their mixture. The permanent advantage of mixing soils, too, is not confined to merely those entirely of an earthy composition: earths which contain inert organic matter, such as peat or moss earth, are highly valuable additions to some soils. Thus, peat earth was successfully added to the sandy soils of Merionethshire by Sir Robert Vaughan. The Cheshire farmers add a mixture of moss and calcareous earth to their tight-bound earths, the effect of which they describe as having 'a loosening operation;' that is, it renders the soil of their strong clays less tenacious, and, consequently, promotes the ready access of the moisture and gases of the atmosphere to the roots. The cultivator sometimes deludes himself with the conclusion that applying sand, or marl, or clay, to a poor soil, merely serves to freshen it for a time, and that the effects of such applications are apparent for only a limited period. Some comparative experiments, however, which were made sixteen years since, on some poor, hungry heath-land, in Norfolk, have up to this time served to demonstrate the error of such a conclusion. In these experiments the ground was marled with twenty cubic yards only per acre, and the same compost; it was then planted with a proper mixture of forest trees, and by the side of it a portion of the heath, in a state of nature, was also planted with the same mixture of deciduous and fir-trees.

"Sixteen years have annually served to demonstrate, by the luxuriance of the marled wood, the permanent effect produced by a mixture of soils. The growth of the trees has been there rapid and permanent; but on the adjoining soil the trees have been stunted in their growth, miserable in appearance, and profitless to their owner.

"Another, but the least commonly practised mode of improving the staple of a soil by earthy addition, is claying; a system of fertilising, the good effects of which are much less immediately apparent than chalking, and hence one of the chief causes of its disuse. It requires some little time to elapse, and some stirring of the soil, before the clay is so

well mixed with a sandy soil as to produce that general increased attraction and retentive power for the atmospheric moisture, which ever constitutes the chief good result of claying poor soils. Clay must be, moreover, applied in rather larger proportions to the soil than chalk; for not only is its application rarely required as a direct food for plants for the mere alumina which it contains, since this earth enters into the composition of plants in very small proportion, but there is also another reason for a more liberal addition of clay being required, which is the impure state in which the alumina exists in what are commonly called clay soils."—*Farm Encyc.*

MODE'CCA. (The Indian name. Nat. ord., *Papayads* [Papayacæ]. Linn., 22-*Diacia* 5-*Pentandria*. Allied to *Carica*.)

Stove evergreen climbing plants, resembling Passion-flowers, from the East Indies. Cuttings of young shoots in May, in sandy soil, under a bell-glass, and in heat; peat and loam. Winter temp., 48° to 55°; summer, 60° to 75°.

M. trilobata (three-lobed). 10. August. 181°. — *tuberosa* (tuberous). 10. August. 1822.

MOD'OLA. (From *modiolus*, the nave of a wheel; referring to the formation of the seed-vessel. Nat. ord., *Mallowworts* [Malvaceæ]. Linn., 16-*Monadelphia* 8-*Polygynia*. Allied to the Mallow.)

Seeds in spring; division of the two herbaceous kinds at the same time, and by cuttings of the young shoots under a hand-light; common, sandy loam. The herbaceous require a dry, sheltered place, or the protection of a cold pit during the winter.

M. Carolina'na (Carolina). Red. June. N. Amer. 1723. Hardy annual.

— *decumbens* (lying-down). Red. June. S. Amer. 1815. Half-hardy herbaceous.

— *prostrata* (lying-flat). Scarlet. May. Brazil. 1806. Half-hardy herbaceous.

MÖERH'NGIA. (Named after P. Möerhing, a German botanist. Nat. ord., *Cloveworts* [Caryophyllacæ]. Linn., 8-*Octandria* 2-*Digynia*. Allied to *Arenaria*.)

Hardy herbaceous perennials, from south of Europe. Division of the plant in spring; common, sandy soil, and dry, elevated positions; suited for steep rock-works.

M. musco'sa (mossy). ‡. Purple. June. 1775. — *sedifolia* (sedum-leaved). ‡. White, red. June. 1823.

MO'HRIA. (Named after M. Mohr, a German botanist. Nat. ord., *Ferns* [Polypodiaceæ]. Linn., 24-*Cryptogamia* 1-*Filices*.)

Greenhouse Fern. See **FERNS**. *M. thuri'fraga* (frankincense). Brown, yellow. June. Cape of Good Hope. 1842.

MOIST STOVE. A stove with a moist atmosphere. See **STOVE**.

MOLDAVIAN PALM. *Dracoc'phalum Molda'vicum.*

MOLDENHAU'ERA. (Named after *I. J. Moldenhauer*, a German botanist. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 10-*Decandria* 1-*Monogynia*. Allied to *Swartzia*.)

Stove evergreen shrub. Cuttings of ripened shoots in sand, under a glass, in heat; rich, sandy loam. Winter temp., 50° to 55°; summer, 60° to 75°.

M. floribunda (many-flowered). Yellow. May. Brazil. 1828.

MOLE CRICKET. One of the most curious, and often most destructive to our kitchen-garden crops of all the subterranean vermin, is the Mole-cricket, known, in different parts of England, by the various names of Earth-crab, Jarr-worm, Churr-worm, and Ere-churr. It is the *Gryllotalpa vulgaris* and *Europæa* of some naturalists, and the *Gryllus gryllotalpa* of others. It rarely appears upon the surface of the soil, but makes burrows, like the mole, and destroys all roots which interrupt him in forming these passages. When full-grown, it is nearly two inches long, and four lines broad; colour, dark brown; antennæ, bristle-shaped, and in front of its black eyes; thorax, hairy; wings, broad, large, and triangular when fully opened; abdomen, nine or ten-jointed, furnished at the end with two hairy, awl-shaped filaments. The two fore-feet are broad, like those of the mole, and similarly intended for digging. The female hollows out a place, about half a foot from the surface, in the month of June, and lays her eggs in a heap, from two to three hundred. They are shining yellowish-brown, and like grains of millet. The young, which are hatched in July or August, greatly resemble black ants, and feed, like the old ones, on the tender roots of grass, corn, and various culinary vegetables. They betray their presence under the earth by the withered decay of culinary vegetables in the garden. In October and November they bury themselves deeper in the earth, as a protection from cold, and come again to the surface in the warmer days in March. Their presence is discovered by their throwing up the earth like moles. The surest of remedies is destroying the brood in June or July. Gardeners know, from experience, where the nest of the Mole-cricket is situated; they dig it out with their spades, and destroy hun-

reds in the egg state with little trouble. —Kollar.

MO'LTKEA. (Named after *Count Moltke*, a Danish noble. Nat. ord., *Borageworts* [Boraginaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Echium*.)

Hardy herbaceous perennial. Division of the plant in spring; rich, sandy loam.

M. cærulea (blue). 1. Blue. April. Persia. 1829.

MOLUCCE'LLA. *Molucca Balm.* (From *Molucca*, where the plants were supposed to be natives. Nat. ord., *Labiates* [Lamiaceæ]. Linn., 14-*Didynamia* 1-*Gymnospermia*. Allied to *Phlomis*.)

Hardy plants, with purple flowers, flowering in July. *Tuberosa*, by dividing the tubers in spring and Autumn. This, and also the others, which are annuals, by seed in a hotbed, in spring; potted, hardened off, and transferred to the flower-border in the middle of May; sandy loam.

M. la'vis (smooth). 1½. Syria. 1570.

— *Marrubia'strum* (*Marrubiastrum*). 1. Syria. 1820.

— *tuberosa* (tuberous-rooted). 2. Tartary. 1796.

MO'LY. *Allium mo'ly.*

MONARDA. (Named after *N. Monardez*, a physician of Seville. Nat. ord., *Labiates* [Lamiaceæ]. Linn., 2-*Diandria* 1-*Monogynia*. Allied to *Salvia*.)

Hardy herbaceous perennials, all but *arista'ta* natives of North America. Division of the plant in spring; common soil.

M. amplexicaulis (stem-embraced). 2. White, pink. June. 1850.

— *arista'ta* (awned). 2. Yellow. August. S. Amer. 1825.

— *Bradburia'na* (*Bradbury's*). Pale red. June.

— *clinopodia* (basil-leaved). 2. Purple, white. July. 1771.

— *didyma* (twin. *Oswego-tea*). 3. Scarlet. July. 1752.

— *fistulosa* (hollow-stalked). 3. Purple. July. 1656.

— — *flo're-macula'ta* (spotted-flowered). 3. Rose-spotted. June. 1832.

— — *mol'lis* (soft). 2. Lilac. July. 1656.

— *gracilis* (slender). 1½. Purple. July. 1820.

— *punctata* (dotted). 2. Yellow, brown. August. 1714.

— *Russellia'na* (*Russell's*). 2. White. September. 1823.

MONARDE'LLA. (A diminutive of *Monarda*. Nat. ord., *Labiates*, or *Lipworts* [Lamiaceæ]. Linn., 14-*Didynamia* 1-*Gymnospermia*. Allied to *Origanum*.)

Hardy herbaceous perennial. Division of the plant in spring; common, sandy soil, with a little peat or leaf-mould.

M. undulata (wavy). 2. Violet. June. California. 1848.

MONET'IA. (Named after *Monet de la Marck*, a French botanist. Nat. ord., *Hollyworts* [Aquifoliaceæ]. Linn., 4-*Tetrandria* 1-*Monogynia*. Allied to *Prinos*.)

Stove evergreen shrub. Cuttings of half-ripened shoots in sand, under a bell-glass, and in a mild bottom-heat; sandy loam, and a little fibry peat. Winter temp., 48° to 55°; summer, 60° to 80°.

M. Barlerioides (Barleria-like). 3. Green. July. E. Ind. 1758.

MONEYWORT. *Lysimachia nummularia*.

MONKEY-BREAD. *Adansonia*.

MONKEY-FLOWER. *Mimulus*.

MONK'S HOOD. *Aconitum*.

MONNI'NA. (Named after *Monnino*, Count de Flora Blanca, a Spanish patron of botany. Nat. ord., *Milkworts* [Polygalaceæ]. Linn., 17-*Diadelphia* 3-*Octandria*. Allied to *Muraltia*.)

The bark of the root is used in Peru for soap, and the Peruvian ladies ascribe the beauty of their hair to the use of it. Greenhouse evergreen shrub. Seeds in March, in a gentle hotbed; cuttings of young side-shoots in April, under a bell-glass, and kept close, but damp prevented; sandy peat and fibry loam. Winter temp., 40° to 45°.

M. crotalariaioides (crotalaria-like). 2. Purple. August. 1840.

— *obtusifolia* (blunt-leaved). 12. Violet and white. June. Peru. 1830.

MONOCHI'LUS. (From *monos*, one, and *cheilos*, a lip; the formation of the flower. Nat. ord., *Verbenas* [Verbenaceæ]. Linn., 14-*Didynamia* 2-*Angiospermia*. Allied to *Verbena*.)

Stove tuber. Division of the tubers when in a dormant state; sandy loam, a little fibry peat, and leaf-mould. Temp. when growing, 55° to 75°.

M. Gloxinifolius (Gloxinia-leaved). 1838.

MONOGRA'MMA. (From *monos*, one, and *gramma*, writing; referring to the spore, or seed-cases. Nat. ord., *Ferns* [Polypodiaceæ]. Linn., 24-*Cryptogamia* 1-*Filices*.)

Stove Ferns, from the West Indies, with brownish-yellow spores. See *FERNs*.

M. furcata (forked-leaved). June. 1825.

— *graminea* (grass-leaved). June. 1830.

— *trichoides* (hair-like). June.

MONOLO'PIA. (From *monolopus*, one covering; referring to the flower-covering. Nat. ord., *Composites* [Asteraceæ]. Linn., 19-*Syngenesia* 2-*Superflua*. Allied to *Chrysanthemum*.)

A pretty, hardy annual, once called *Helénium Douglasii*. Seeds in mellow soil, in April.

M. major (greater). 3. Yellow. July. California. 1834.

MONOME'RIA. (From *monos*, one, and *meris*, a part. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-*Gynandria* 1-*Monandria*. Allied to *Bulbophyllum*.)

Stove orchids. Division in spring or autumn; fibry peat, broken pots, and sphagnum. Winter temp., 55° to 60°; summer, 60° to 90°.

M. barbatula (bearded). Spotted. India. 1841.

— *nitida* (shining). Mexico. 1841.

MONO'PSIS. (From *monos*, one, and

opsis, a face; the flowers being more regular than is usual in the Nat. ord., *Lobeliads* [Lobeliaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*.)

A pretty little annual, once called *Lobelia speculum*. Seeds in a hotbed, in March; plants pricked off, hardened off, and transferred to the open border at the end of May.

M. conspicua (conspicuous). 4. Blue. July. Cape of Good Hope. 1812.

MONO'TOCA. (From *monos*, one, and *tokos*, a birth; the fruit, which is eatable, having only one seed. Nat. ord., *Epacrids* [Epacridaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Leucopogon*.)

Greenhouse white-flowered evergreens, from New South Wales. Cuttings of the points of young shoots in sand, over sandy soil, and covered with a bell-glass, in May; sandy peat, and a little fibry loam. Winter temp., 40° to 48°.

M. alba (white). 6. June. 1824.

— *elliptica* (oval-leaved). 8. June. 1802.

— *lineata* (narrow-leaved). 6. June. 1804.

— *scoparius* (broom). 5. June. 1825.

MONSO'NIA. (Named after *Lady A. Monson*. Nat. ord., *Cranesbills* [Geraniaceæ]. Linn., 16-*Monadelphia* 7-*Dodecandria*. Allied to *Geranium*.)

Greenhouse herbaceous perennials, except *ovata*, which is biennial. All from the Cape of Good Hope. Seeds in a slight hotbed, in spring, and transplanted; cuttings in spring and autumn, under a hand-light; division and cuttings of the roots in summer and autumn; sandy loam, and a little peat and leaf-mould; a cold pit or greenhouse in winter.

M. lobata (lobed-leaved). 1. Purple. May. 1774.

— *ovata* (egg-leaved). 1. White. August. 1774.

— *pilosa* (long-haired). 1. White. July. 1778.

— *Colla* (Colla's). 1. Pale red. July. 1820.

— *speciosa* (showy). 1. Red. May. 1774.

— *pauciflora* (pale). 1. Pale red. May.

MONTEBET'TIA. (In honour of *M. Montoret*. Nat. ord., *Irids* [Iridaceæ]. Linn., 16-*Monadelphia* 1-*Triandria*.)

A little Ixia-looking bulb, with yellow flowers, from the Cape of Good Hope. Offsets; sandy loam, with a little peat or leaf-mould; if not protected on a warm border, should be kept during winter in a cold pit.

M. flexuosa (zigzag). May. 1803.

— *virgata* (twiggy). May. 1825.

MONTEZU'MA. (Named after a king of Mexico. Nat. ord., *Sterculiads* [Sterculiaceæ]. Linn., 16-*Monadelphia* 7-*Dodecandria*. Allied to *Cheirostemon*.)

Stove evergreen tree. Cuttings of shoots, getting firm, in sand, under a glass, and in bottom-heat; sandy loam and lumpy peat. Winter temp., 45° to 55°; summer, 60° to 80°.

M. speciosissima (showiest). 30. Red. Mexico. 1827.

MOON-SEED. *Menispermum*.

MOON-TREFOIL. *Medicago arborescens*.

MOONWORT. *Botrychium*.

MORÆ'A. (Named after *R. Moore*, an English botanist. Nat. ord., *Irids* [*Iridaceæ*]. Linn., 3-*Triandria* 1-*Monogynia*. Allied to *Iris*.)

These pretty bulbs, all from the Cape of Good Hope, except where otherwise mentioned, require the same treatment as *L'XIA*, which see.

M. angusta (narrow-leaved). 2. Lilac. May. 1790.
— *barbifera* (bearded). 4. Purple. May. 1887.
— *bicolor* (two-coloured). 2. Yellow, dark. June.
— *bituminosa* (bituminous). 1. Yellow. May. 1787.
— *cutenula* (chain-dotted). 1. White, blue.

May. Mauritius. 1826.

— *ciliata* (hair-leaved). 4. Yellow. September. 1587.
— *collina* (hill). 2. Purple. May. 1768.
— *crispata* (curled). 4. Blue. May. 1803.
— *edulis* (eatable). 4. Fulvous. May. 1792.
— *elegans* (elegant). 14. Vermilion. May. 1825.
— *exaltata* (tall). 3. Vermilion. May. 1768.
— *flexuosa* (limp). 14. Vermilion. May. 1810.
— *zigzag*. 1. Yellow. May. 1803.
— *iridoides* (iris-like). 4. White, brown. July. 1758.

— *lineata* (narrow-leaved). 1. Vermilion. May. 1825.

— *longiflora* (long-flowered). 4. Yellow. May. 1811.
— *longifolia* (long-leaved). 3. Yellow. May. 1808.
— *minuta* (vermilion). 2. Vermilion. May. 1799.
— *minuta* (small). 4. Blue. June. 1825.
— *odorata* (sweet-scented). 2. Lilac. May. 1799.
— *papilionacea* (butterfly). 4. Variegated. May. 1795.

— *plumaria* (feathered). 1. Yellow. May. 1825.
— *polystachya* (many-spiked). 1. Yellow. June. 1825.

— *porrifolia* (leek-leaved). 2. Vermilion. May. 1825.

— *ramosa* (branched). 3. Yellow. May. 1789.
— *setacea* (bristly). 4. Yellow. June. 1825.
— *sisyrinchium* (*sisyrinchium*). 4. Blue. May. South Europe. 1597. Hardy.

— *spicata* (spiked). 14. Yellow. May. 1785.
— *Tenoreana* (*Tenore's*). 1. Purple. May. Naples. 1824. Hardy.

— *tristis* (dull-coloured). 1. Blue. June. 1763.
— *virgata* (twiggy). 1. Purple. May. 1825.
— *viscaria* (clammy). 1. Lilac. May. 1800.

MORETON-BAY CHESTNUT. *Castanosperma*.

MORICANDIA. (Named after *S. Moricand*, an Italian botanist. Nat. ord., *Crucifers* [*Brassicaceæ*]. Linn., 15-*Tetradynamia*.)

Simple-looking hardy plants, but useful for cut flowers in winter. Seed sown in the open border, in April.

M. arvensis (field. Cabbage-flowered). 14. Violet. July. Europe. 1739. Biennial.

— *hesperidiflora* (*hesperis*-flowered). 1. Purple. June. Egypt. 1837. Annual.

MORINÆ. (Named after *L. Morin*, a French botanist. Nat. ord., *Teaselworts* [*Dipsacaceæ*]. Linn., 2-*Diandria* 1-*Monogynia*.)

Strong, half-hardy, herbaceous plants, suited for borders in summer. Seed in a slight hotbed, in April, and hardened off to suit a cool greenhouse or sheltered borders; also by divisions, if the plant is saved over the winter.

M. longifolia (long-leaved). 3. Purple. July. E. Ind. 1839.

M. Persica (*Persian*). 3. Red, white. July. Persia. 1740.

MORINDA. (From a corruption of *Morus Indicus*, Indian Mulberry; in reference to its fruit. Nat. ord., *Cinchonads* [*Cinchonaceæ*]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Guettarda*.)

Stove evergreen shrubs, with white flowers. Cuttings of shoots nearly stopped growing, in sand, under a bell-glass, in summer, and in a nice bottom-heat; sandy loam, peat, and leaf-mould. Winter temp., 45° to 58°; summer, 70° to 80°.

M. angustifolia (narrow-leaved). 6. May. E. Ind. 1816.

— *bracteata* (bracted). 6. May. E. Ind. 1816.

— *citrifolia* (citron-leaved). 8. E. Ind. 1793.

— *jasmimoides* (jasmine-like). Pale buff. April. Point Jackson. 1823.

— *Roycei* (*Royce*). 10. August. W. Ind. 1793.

— *tinctoria* (*dye's*). June. Otaheite. 1825.

— *umbellata* (umbelled). June. E. Ind. 1822.

MORINGA. Horse-radish-tree. (From *moringo*, the Indian name. Nat. ord., *Moringads* [*Moringaceæ*]. Linn., 10-*Dicandria* 1-*Monogynia*.)

The roots are used in India for horse-radish. Stove evergreen, yellow-flowered trees, from the East Indies. Cuttings of half-ripened shoots in sand, under a bell-glass, and in heat, in April or May; sandy loam, and a little peat and leaf-mould. Winter temp., 50° to 55°; summer, 63° to 85°.

M. aptera (wingless). 15. May. 1839.

— *polygona* (many-angle-fruited). 15. April. 1822.

— *pterygosperma* (winged-seeded). 20. 1759.

MORISIA. (Named after *Professor Moris*. Nat. ord., *Crucifers* [*Brassicaceæ*]. Linn., 15-*Tetradynamia*.)

Seed sown where it is to remain; cuttings under a hand-light, in summer, and division in spring; a pretty little thing for a knoll, or for rock-work.

M. hypogæa (fruit-burying). 4. Yellow. May. Sardinia. 1833.

MORISONIA. (Named after *Professor Morison*, of Oxford. Nat. ord., *Capparids* [*Capparidaceæ*]. Linn., 16-*Monadelphia* 8-*Polyandria*. Allied to *Cratæva*.)

Stove evergreen tree. Cuttings of the ripened shoots early in spring, under a glass, in sandy soil and bottom-heat. Winter temp., 50° to 55°; summer, 60° to 85°.

M. Americana (*American*). 15. White. W. Ind. 1824.

MORMO'DES. (From *mormo*, a goblin; referring to the strange appearance of the flowers. Nat. ord., *Orchids* [*Orchidaceæ*]. Linn., 20-*Gynandria* 1-*Monandria*. Allied to *Catasetum*.)

Stove orchids. Division, and pieces cut off; rough peat, moss, and crocks, in shallow baskets, or raised well above a pot. Winter temp., 55° to 60°; summer, 60° to 90°.

M. aromanticum (aromatic). 3. Pink. July. Mexico. 1838.

— *atro-purpureum* (dark purple). 4. Purple. red. October. South Main. 1834.

- M. buccinator* (trumpet). Yellowish-green. April. La Guayra. 1835.
 — *Carto'ni* (Carton's). 1. Straw. July. Santa Martha.
 — *citri'num* (yellow). Yellow. Mexico. 1837.
 — *linea'tum* (streaked). 1. Yellow, crimson. March. Guatemala. 1836.
 — *lura'tum* (dislocated). 1. Straw. August. Mexico. 1842.
 — *pardi'num* (panther). Yellow, red. July. Oaxaca. 1837.
 — — *unicolor* (one-coloured). Yellow. September. Mexico. 1843.
 — *ro'seo-a'lbum* (rose and white). White, rose.
 — *Russellia'num* (Duke of Bedford's). Green. August. Guatemala. 1838.

MORNA. Named after *Morna*, one of Ossian's heroines. Nat. ord., *Compositæ* [*Asteraceæ*]. Linn., 19-*Syngenesia* 1-*Æqualis*. Allied to *Podolopsis*.)

Greenhouse plants, with yellow flowers, from Swan River. *Ni'tida*, an evergreen, may be propagated by cuttings under a bell-glass; and both are easily raised from seed, sown either in September or March; but in both cases the plants must be kept in light soil, and well drained, or they will damp off. The autumn-sown ones will bloom in the greenhouse early in spring and summer; the spring-sown ones late in summer, and the beginning of autumn. If it is desirable to try them out of doors, they should not be planted out far north of London until the middle of June.

- M. ni'tida* (beautiful). 2. February. 1835.
 — *ni'vea* (snowy). 1½. July. 1836.

MORONO'BEA. (From *moronobo*, the native name. Nat. ord., *Guttifers* [*Clusiaceæ*]. Linn., 18-*Polyadelphia* 2-*Polyandria*.)

Stove evergreen tree. Cuttings of the ripened shoots, with all the leaves except those at the lower joint, in sand, in heat, and under a bell-glass; sandy loam, and lumpy, dried leaf-mould. Winter temp., 50° to 55°; summer, 60° to 85°.

- M. cocci'nea* (scarlet-flowered). 40. Guiana. 1825.

MORUS. Mulberry. (From *mor*, the Celtic for black; referring to the colour of the fruit. Nat. ord., *Morads* [*Moraceæ*]. Linn., 21-*Monæcia* 4-*Tetrandria*.)

Seeds, layers, cuttings, and truncheons; in fact, you can scarcely fail to propagate the Mulberry, as pieces of the roots, branches, and even the stem, if stuck into the ground in a deciduous state, will grow more easily than a gooseberry-cutting; deep, sandy, or calcareous loam. Of the hardy kinds, *ni'gra* is the hardest, grown chiefly for its fruit. *A'lba* is more tender, grown chiefly for its leaves for feeding the silkworm.

STOVE EVERGREEN TREES.

- M. India* (Indian). 20. E. Ind. 1820.
 — *Mauritia'na* (Mauritian). 20. Mauritius. 1823.

HARDY DECIDUOUS TREES, &c.

- M. a'lba* (white). 30. June. China. 1596.
 — — *Columba'ssa* (Columba).
 — — *Ita'lica* (Italian). 20. June. Italy. 1817.
 — — *macrophy'lla* (large-leaved). 39. June. China.
 — — *membrana'cea* (membranous).
 — — *Morettia'na* (Moretti's). June.
 — — *multicau'lis* (many-stemmed). June. China.

- M. alba nervo'sa* (nerved). June. China.
 — — *pu'mila* (dwarf). 10. June. China.
 — — *Roma'na* (Roman).
 — — *ro'sea* (rose-like). 20. June. China.
 — — *Sine'nsis* (Chinese). 20.
 — *eu'lear-ga'lli* (cock-spur). N. S. Wales. 1830. Evergreen.
 — *Constantinopoli'ta'na* (Constantinople). 15. June. Turkey. 1818.
 — *ni'gra* (common-black). 20. June. Italy. 1548.
 — — *lacinia'ta* (cut-leaved). 30. June.
 — *ru'bra* (red). 10. June. N. Amer. 1629.
 — *sca'bra* (rough). 20. June. N. Amer. 1817.
 — *Tata'rica* (Tartarian). 20. June. Tartary. 1784.

MULBERRY (*M. ni'gra*) CULTURE.—*Propagation: by Cuttings.*—In former days this operation was much circumscribed, being limited to the cuttings of the young shoots, as in currants. Truncheons of considerable size may, and, indeed, ought to be used. These strike with facility by ordinary means, especially in the deciduous state, and put in the soil in the autumn, leaving only a bud or two exposed.

If *Truncheons* of some size are used, let them be taken from the tree in the beginning of February; and being inserted a foot deep, in a situation where neither direct sunshine nor wind can freely penetrate, envelope their stems above the ground-level with moss, all but the upper pair of buds, in order to prevent evaporation.

By Layers.—The shoots of the previous year are generally selected for this purpose, and may be either slit or ringed, although they will root without. This being performed in November, or in February, the young plants will be ready to be removed from the parent plant in twelve months, when they may be placed in the nursery for two years, by which time they will be fit for their permanent situations, care being taken to train them to, stems, as ordinary standard fruit-trees.

By Grafting.—Ordinary grafting, as in the apple, is not a very safe mode; but inarching, or grafting by approach, is quite eligible. This is performed exactly as in other trees, and will produce strong plants in a short time.

By Seeds.—This practice is seldom resorted to, but may prove interesting to some. The seed being washed from the pulp as soon as ripe, and dried, may be preserved through the winter in dry sand, and sowed in the succeeding February. A slight bottom-heat will facilitate the progress of the seedlings; but they may be safely reared without, by affording a

regular but not excessive supply of moisture, with a partial deprivation of light for awhile. They will need the ordinary routine of transplanting, &c., afterwards.

Culture during the Growing Period.—In the standard state little or nothing can be done; but those trained on walls or fences must have some assistance. It must be kept in view, that the mulberry produces fruit both on short-jointed young wood and on spurs, and that fruit must not be looked for from luxuriant shoots. The summer's dressing must consist in thinning-out and stopping the grosser shoots in crowded situations, observing a regularity in their distances for the admission of sunlight. We would advise much stopping in preference to much disbudding, as such parts may form a nucleus for future spurs; and if they turn out barren, it will be easy to remove them totally in the succeeding year. The mulberry, when trained, will extend a great way; and regular training, as the shoots extend, must be practised.

Culture during the Rest Period.—Some pruning is occasionally of benefit, even to standard trees, but it can be merely thinning out cross-shoots on those parts of the tree which are too crowded. The shady side of the tree, too, may be kept thinner than the sunny side; and watery spray springing from the branches in the interior may be removed. Those trained must have superfluous shoots and barren snags or spurs removed; but no shortening back is necessary.

Soil.—Any ordinary garden or field-soil will do for them, if not too clayey; for they rather prefer an upland or mellow soil, which should be of a generous character, but not enriched with manures until they get rather old and cease producing luxuriant wood, when a rich, mellow compost, as top-dressing occasionally, will much benefit them.

Forcing.—The mulberry bears forcing excellently, and will ripen its fruit early in June. It will bear a very high temperature. It may also be grown of a dwarf size in pots, and be thus forced.

MOSCHARIA. (From *moschos*, musk; a musk-smelling plant. Nat. ord., *Compositæ* [*Asteracæ*]. Linn., 19-*Syngenesia* 1-*Æqualis*.)

Hardy annual. Seeds in a slight hotbed, in April; seedlings harden off, and transplant in open borders, in May.

M. pinnatifida (leaflet-cut-leaved). $\frac{1}{2}$. July. Chili. 1823.

MOSCHO'SMA. (From *moschos*, musk, and *osme*, smell. Nat. ord., *Labiates* [*Lamiacæ*]. Linn., 14-*Didynamia* 1-*Gymnospermia*. Allied to *Ocimum*.)

Tender annual. Seeds in a hotbed, in beginning of April; seedlings potted and grown in greenhouse in summer, or placed in the open border in June, in a sheltered situation; light, rich, sandy soil.

M. ocymoides (ocimum-like). $1\frac{1}{2}$. White. August. 1823.

Moss is useful to the gardener for packing round the roots of plants; and even some bulbous roots and orchids are cultivated in it; but when it infests the trunks of trees, or our lawns, it is one of the gardener's pests.

Mossy lawns are on a soil which is unable to support a green sward of grass. When soil is exhausted, grasses begin to die off, and their place is taken by moss. The obvious mode, then, of proceeding, is to give the lawn a good top-dressing in winter, either of malt-dust, or nitrate of soda, or soot, or any manure containing an abundance of alkali. The gardener finds the growth of moss arrested by frequent raking in wet weather, or by the application of pounded oyster-shells; but these are mere palliatives, and not remedies. Make your grass healthy, and it will soon smother the moss.

The most effectual, most salutary, and least disagreeable remedy for moss on trees is of trivial expense, and which a gardener need but try upon one individual to insure its adoption. It is with a hard scrubbing-brush, dipped in a strong brine of common salt as often as necessary, to insure each portion of the bark being moistened with it, to scrub the trunks and branches of his trees at least every second year. It most effectually destroys insects of all kinds, and moss; and the stimulating influence of the application, and the friction, are productive of the most beneficial effects. The expense is not so much as that of dressing the trunks with a solution of lime, which, however efficient in the destruction of moss, is not so in the removal of insects, and is highly injurious to the trees, by filling up the respiratory pores of the epidermis, and is decidedly a promoter of canker.

On gravel walks, a strong solution of sulphate of copper (blue vitriol) has been found the most effectual destroyer of moss.

MOTH. *Verba'scum blattaria*.

MOTHERWORT. *Leonotis*.

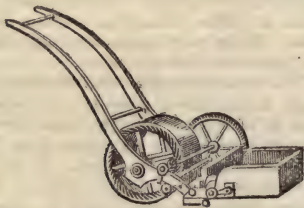
MOTHS of most kinds are the parents of caterpillars preying upon some plant under the gardener's care, and should be destroyed whenever discovered.

MOTTLED UMBRE-MOTH. *Geometra*.

MOULDINESS is the common term applied to that crop of fungi which appears on moist, putrescent vegetable matters. These fungi are *Mucor*es, and are effectually destroyed whenever common salt or sulphur can be applied.

MOUNTAIN ASH. *Pyrus aucuparia*.**MOUNTAIN EBONY.** *Bauhinia*.**MOUSE-EAR.** *Hieracium stoloniferum*.**MOUSE THORN.** *Centaurea myacantha*.

MOWING is, next to digging, the most laborious of the gardener's employments, and requires much practice, as well as an extremely sharp scythe, before he can attain to the art of shaving the lawn or grass-plot smoothly and equally. A mowing machine has been invented by Mr. Budding and others, and is represented in this outline. It cuts, collects, and rolls the grass at the same time, and is better than the scythe for mossy lawns.



Mowing is most easily performed whilst the blades of grass are wet, as they then cling to the scythe, and are consequently erect against its cutting edge. The operation, therefore, should be performed early in the morning, before the dew has evaporated, or whilst the grass is wet from rain or artificial watering. See SCYTHE.

MUCUNA. Cow-itch. (The Brazilian name. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 17-*Diadelpbia* 4-*Decandria*. Allied to *Erythrina*.)

The hairs on the seed-pods of *M. pruriens* is the Cow-itch. Stove-climbers, with purple flowers, which open in July. Cuttings of half-ripened shoots in sandy soil, under glass, in heat; rich, sandy loam. Winter temp., 55°; summer, 60° to 85°.

M. altissima (tallest). 50. Martinico. 1779.
— *atro-purpurea* (dark purple). 10. E. Ind. 1820.
— *pruriens* (common-stinging). 12. E. Ind. 1680.

MUDAR PLANT. *Calotropis gigantea*.

MUDDING, or PUDDLING, is dipping the roots of trees, shrubs, and seedlings in a thin mud or puddle, and retaining them there until again planted, whenever they are removed. It is one of the best aids to success, and should be universally adopted; for it is a rule without exception, that the less the roots of a plant are injured, and the moister they are kept during its removal, the less does it suffer by the transplanting. The best of all muds for the purpose is formed of three pounds of garden-soil, one ounce of salt, eight ounces of soot, and one gallon of water.

MULBERRY. *Morus*.

MULCHING is placing mulch, or long, moist stable-litter, upon the surface of the soil over the roots of newly-planted trees and shrubs. The best mode is to form a trench about six inches deep, to put in the mulch, and cover it with the earth. This prevents the mulch being dried or scattered by the winds, and is more neat than exposing it on the surface. Mulching keeps the moisture from evaporating, and prevents frost penetrating to the roots, straw being one of the worst conductors of heat. When rapid growth is desirable, the mulch should be kept on the surface, and removed at times in bright sunshine, that the soil may be heated; for, if deeply mulched, the leaves may be enjoying the climate of India, and the roots be nearly as cold as if in Siberia.

MULE, or **HYBRID**, is a plant raised from seed generated by parents of distinct species, and consequently infertile. See HYBRIDIZING.

MULGEDIUM. (Derivation not known. Nat. ord., *Compositæ* [Asteraceæ]. Linn., 19-*Syngenesia* 2-*Superflua*. Allied to *Hieracium*.)

A hardy herbaceous and a good rock-plant. Seeds and divisions in spring; dry, sandy soil.

M. macrorrhizum (large-rooted). ♀. Blue. September. Cashmere. 1844.

MULLEIN. *Verbascum*.

MULLERA. (Named after O. F. Muller, a Danish botanist. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 16-*Mona-delpbia* 3-*Decandria*. Allied to *Dalbergia*.)

Stove evergreen shrub. Cuttings of half-ripened shoots in sand, under a glass, in heat; peat and loam. Winter temp., 50° to 55°; summer, 60° to 85°.

M. moniliformis (necklace-formed-podded). ♂. Yellow. Guiana. 1792.

MU'NDIA. (From *mundus*, neat; the appearance of the plants. Nat. ord., *Milkworts* [Polygalacæ]. Linn., 17-*Diadelphia* 3-*Octandria*. Allied to *Murtalia*.)

The fruit is eatable. Greenhouse evergreen shrubs, from the Cape of Good Hope. Cuttings of stiff young side-shoots in May, in sand, under a bell-glass, and in a close, cold pit or frame; sandy peat. Winter temp., 40° to 45°.

M. spino'sa (spiny). 3. White. March. 1780.
— *angustifolia* (narrow-leaved). 3. Purple. March. 1800.

— *latifolia* (broad-leaved). 3. Lilac. February. 1800.

MUNTINGIA. (Named after A. Munting, a German botanist. Nat. ord., *Lindenblossoms* [Tiliacæ]. Linn., 13-*Polyandria* 1-*Monogynia*. Allied to *Aristotelia*.)

Stove evergreen shrub, known as the *Calabura* in South America. Cuttings of half-ripened shoots in sand, under a glass, in heat; sandy, fibry loam and leaf-mould. Winter temp., 48° to 58°; summer, 60° to 85°.

M. calabura (calabura). 3. White. June. Jamaica. 1690.

MURALTIA. (Named after J. V. Muralt, a Swiss botanist. Nat. ord., *Milkworts* [Polygalacæ]. Linn., 17-*Diadelphia* 3-*Octandria*. Allied to *Polygala*.)

Greenhouse evergreens, all but one purple-flowered, and all from the Cape of Good Hope. Cuttings of short young shoots in sandy peat, under a glass; chiefly peat earth, with a good portion of sand. Winter temp., 40° to 45°.

M. alopecuroides (foxtail-like). 3. June. 1800

— *ciliaris* (hair-fringed-leaved). 3. May. 1824.

— *diffusa* (straggling). 3. 1800.

— *filiformis* (thread-form-branched). 1½. August. 1812.

— *Heisteria* (Heister's). 6. January. 1787.

— *humilis* (humble). 1. June. 1819.

— *juniperifolia* (juniper-leaved). 3. June. 1910.

— *linophylla* (flax-leaved). 3. June. 1816.

— *macroceras* (large-horned). 3. 1812.

— *micrantha* (small-flowered). 1½. 1800.

— *mixta* (mixed). 3. 1791.

— *squarrosa* (spreading). 3. May. 1820.

— *stipulacea* (stipuled). 3. Red. June. 1801.

— *virgata* (twiggy). 3. 1812.

MURICE. See BYRSO'NIMA.

MURRAYA. (Named after Professor Murray, editor of Linnæus's works. Nat. ord., *Citronworts* [Aurantiacæ]. Linn., 10-*Decandria* 1-*Monogynia*. Allied to *Cookia*.)

Stove evergreen, white-flowered trees, from the East Indies. Cuttings of shoots, getting firm at their base, in sand, under a bell-glass, and in a bottom-heat of about 90°. Winter temp., 60° to 55°; summer, 60° to 85°.

M. exotica (exotic). 10. August. 1771.

— *paniculata* (panicked). 20. July. 1823.

MURUCUA. (The native name. Nat. ord., *Passionworts* [Passifloracæ]. Linn., 16-*Monadelphina* 2-*Pentandria*.)

For all practical purposes they may be con-

sidered as 'Passion-flowers.' Stove evergreen climbers, from the West Indies. Cuttings of the young shoots in spring, in sand, and then placing them in a sweet hotbed; peat one part, loam, fibry and sandy, one part, with a little leaf-mould and broken crocks. Winter temp., 50° to 55°; summer, 60° to 85°.

M. ocellata (small-eyed). 12. Scarlet. July. 1730.

— *perfoliata* (leaf-stem-pierced). 15. Purple.

July. 1816.

MU'SA. Plantain-tree. (From *mauz*, the Egyptian name. Nat. ord., *Musads* [Musacæ]. Linn., 5-*Pentandria* 1-*Monogynia*.)

The fruit of the *Musads* is called Bananas and Plantains. Stove evergreens: Chiefly by suckers; rich, loamy soil, with abundance of water when growing freely. Winter temp., 55° to 60°; summer, 60° to 90°, with plenty of atmospheric moisture. *Cavendishii*, from fruiting at a small size, is the most valuable.

M. Cavendishii (Cavendish's). 4. Scarlet. China. 1829.

— *coccinea* (scarlet). 4. Scarlet. July. China. 1792.

— *glauca* (milky-green). 10. Pink. E. Ind. 1824.

— *maculata* (spotted). 10. Pink. Mauritius. 1818.

— *Nepalensis* (Nepaul). 6. Yellow. February. Nepaul. 1829.

— *ornata* (ornamented). 5. Orange. July. E. Ind. 1823.

— *paradisifera* (paradise. Plantain). 20. Pink. November. Tropics. 1690.

— *rosea* (rosy). 15. Pink. March. Mauritius. 1805.

— *sapiantum* (wise-men's. Banana). 20. Pink. June. Tropics. 1729.

— *superba* (superb). 14. Purple. July. E. Ind. 1820.

— *zebrina* (zebra). 10. Purple. E. Ind. 1820.

BANANA AND PLANTAIN CULTURE.—*Propagation.*—Sir J. Paxton has suggested, that immediately the fruit is cut from the old plants, these be taken out of their tubs, partially disrooted, and placed in pots to produce suckers, which they will do readily, especially if plunged in a bottom-heat of about 85°. These suckers are removed into smaller pots, and cultivated from pot to pot, and thence to the tub, in which they are fruited.

Soil.—The soil must be exceedingly rich, and by no means adhesive; rather of a light character, and well-drained, in order that copious supplies of water may be given.

Culture.—A lively heat is the great essential, with a liberal amount of atmospheric moisture. A thermometer ranging from 70° to 90° during the bright part of the year, and from 60° to 70° during the duller portion, will be requisite.

Suckers will produce fruit within the year; and if one be approaching too close on the heels of another in ripening; the whole spadix of fruit of the one may

be cut off, with a portion of the stem, just where the upper tier of fruit is ripening, and suspended in a dry and airy room, after the manner of late grapes. Sir J. Paxton observes, that "he has had capital fruit from a spadix two months after it was cut." The produce of one plant will weigh from 15 to 30 pounds.

MUSCA'RI. Grape Hyacinth. (From *moschos*, musk; the smell of the flowers. Nat. ord., *Lilyworts* [*Liliaceæ*]. Linn., 6-*Hexandria* 1-*Monogynia*. Allied to *Hyacinthus*.)

Hardy bulbs. For culture, see *HYACINTHUS*.

- M. botryoides* (botry-like). $\frac{1}{2}$. Blue. April. Italy. 1596.
- *albium* (white). $\frac{1}{2}$. White. April. Italy. 1596.
- *pallidum* (pale). $\frac{1}{2}$. Pale blue. April. Italy. 1596.
- *ciliatum* (hair-fringed). 1. Brown, purple. May. Crimea. 1822.
- *commutatum* (dark-purple). $\frac{1}{2}$. Blue. Italy. 1836.
- *comosum* (tufted). $\frac{1}{2}$. Blue. April. South Europe. 1596.
- *monstrosum* (monstrous). $\frac{1}{2}$. Pale blue. April. South Europe. 1596.
- *glaucum* (milky-green). $\frac{1}{2}$. Purple, green. May. Persia. 1825.
- *macrocarpum* (large-fruited). $\frac{1}{2}$. Green, yellow. April. Levant. 1596.
- *moschatum* (musky). $\frac{1}{2}$. Blue, yellow. April. Levant. 1596.
- *pallens* (pallid). $\frac{1}{2}$. Pale blue. May. Crimea. 1822.
- *parviflorum* (small-flowered). Blue. April. Sicily. 1827.
- *pedunculare* (long-flower-stalked). $\frac{1}{2}$. Blue. April.
- *racemosum* (racemed). $\frac{1}{2}$. Blue. April. Europe. 1780.
- *minus* (smaller). $\frac{1}{2}$. Blue. April. Europe. 1780.

MUSHROOM. *Agaricus campestris*.

Mushroom-beds, for winter production, should be formed in August, and once in two months after, of dry materials, such as four or five barrowsful of horse-droppings, which have been saved for the purpose, four or five barrowsful of road-sweepings, and four or five barrowsful of dry, husky dung from the stable dung-heap. Let these be all well turned over three or four times to sweeten in some dry place. If the mixture should be found too dry to ferment sufficiently, then sprinkle it with a little water at the time of its being turned over. Shake it and mix it well together. The quantity of materials depends on the size of the beds required. The place where the beds are to be made should be dry at bottom. The materials being in good condition, proceed to make up your bed as solid and

firm as it can be beat together with the fork, whether in ridges or half ridges, or whatever shape may be thought most convenient. Let the outside be beaten smooth and well with a shovel or spade. Then insert a stick to prove the temperature of the bed by. In about ten days after the bed has been made it will be fit for *spawning*, if all has gone on well, and the heat be found about that of cows' milk; but if the heat be too great, defer it for another week, and shake open the bed a little to let off the rank heat. If too cold, add a little fresh materials, and work it up well together. Before putting in the spawn make the beds firm, smooth, and even; then open holes with the hand about an inch below the surface, and eight inches apart every way. Place in each hole a moderate-sized lump or handful of bits of spawn, and cover it over again with the same dry materials of the bed. If there is no fear of the bed being too hot, it may be covered over at the same time, about an inch and a half thick, with good turfy loam, rather dry, and run through a sieve first. When all is regularly covered over, sprinkle the whole with water from a fine rose water-pot, and pat the whole surface down level, leaving it as smooth as a fresh-plastered wall. Let it remain to dry off, giving plenty of air to dry it off the quicker. After this, the bed should have a covering of anything like mouldy hay, such as tops and bottoms from the hay-rick, or hay-bands untwisted, or the like. Cover up according to the heat of the beds. If you have any doubt whether it is too hot, let the covering be light; and at all times the short mulch, when gathering the mushrooms, should be cleared off from the bed's surface, or it will exhaust the bed by the encouragement it gives to the spawn to run out. A little additional litter may be added as required, so as to keep the beds in regular and uniform bearing, and gentle applications of tepid liquid-manure will be found of great benefit to those beds that have been well gathered from. Where the convenience of hot-water pipes, or other artificial means, can be commanded for mushroom culture, so that the right temperature can be at all times maintained, no kind of litter-covering need be applied. Mushroom-beds are always best made under cover, and even a cart-shed can be very easily converted into an excellent mushroom-house,

Warm and gentle moisture has much to do with the growth of the mushrooms; therefore, if the shed is covered in with slate or tiles, the space between the rafters inside should be well stuffed with straw of any kind, which can be fastened up by nailing cross strips of boards from rafter to rafter. Then, after the bed is made, spawned, and finished, the front of the shed may be stopped up with thick and well-thatched hurdles, which would be warmer and better than any other thin permanent enclosure. These hurdles can be readily opened whenever light is wanting, either to examine the beds, or to cover, or to uncover, or to collect, the mushrooms. It is also convenient to be able to open the house opposite where you wish, either to get in fresh materials to make a new bed with, or to take out an old one. If the length of the shed be from 21 to 30 feet, it should give a large supply of mushrooms during the winter and spring months. The beds should be made along the back of the house.

Previously to making up the beds, a board about nine inches high should be placed as a frontage-board, from three to four feet distant from the wall, which is a good width for the bottom of the bed. This front board may be supported upright by driving three or four short stakes into the floor. The bed may be from two to three feet high at the back, sloping down to nine inches in front, which will give a very convenient width to reach over for all necessary purposes. Have the materials ready to make the first bed about the last week in August. Let this occupy one-third of the length of the shed. Make up another of the same size about the last week in October, and the remaining third about the 1st of January.

In four or five weeks after spawning, in spring and autumn, the bed should begin to produce, but not until much later in summer and winter; and if kept dry and warm, it will continue to do so for several months.

A gathering may take place two or three times a week, according to the productiveness of the bed. It sometimes happens that beds will not come into production for five or six months; they should not, therefore, be impatiently destroyed.

Watering.—In autumn, the bed will

not require water until the first crop is gathered, but it is then to be repeated after every gathering; a sprinkling only is necessary. In spring and summer, during dry weather, the same course is to be pursued. As excessive or unequal moisture is studiously to be avoided, the best mode of applying the water is to pour it through a rose-pan on to a thin layer of hay, which has previously been spread over the bed, and thus allow it to percolate by degrees. In winter, waterings are not allowable; to keep the mould moist, hot fermenting mulch may be put on outside the covering. If the bed is in the open ground, on a warm day succeeding to wet weather, it may be left uncovered for not more than two or three hours. During excessive rains, the additional covering of mats, &c., must be afforded; and, on the other hand, if a moderate, warm shower occurs during summer, after excessive droughts, it may be fully admitted, by taking off the covering.

Mode of Gathering.—In gathering, the covering being carefully turned off, only such are to be taken as are half an inch or more in diameter before they become flat, but are compact and firm. Old mushrooms, especially, should be rejected for the table, as it is found that some which are innocuous when young become dangerous when tending to decay; they also then lose much of their flavour.

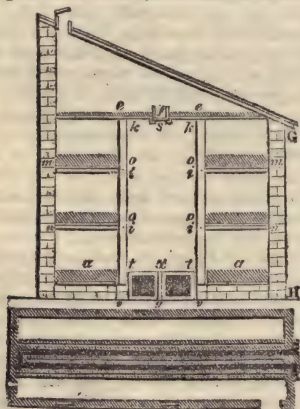
Each mushroom is detached by a gentle twist completely to the root; a knife must never be employed, for the stumps left in the ground decay, and become the nursery of maggots, which are liable to infect the succeeding crop.

Other Modes of Cultivation.—Some gardeners merely vary from the preceding by building entirely of dung, without any layers of earth. Many gardeners grow mushrooms in the same bed with their melons and cucumbers. The spawn is inserted in the mould, and on the hills of the beds, as soon as the burning heat is passed. In September or October, when the bines of the plants decay, the bed is carefully cleaned, the glasses put on and kept close, and when the earth becomes dry, water is frequently but moderately given, as well as every gentle shower admitted when necessary. A gentle heat is thus caused, and the produce is often extraordinarily abundant, frequently two bushels, from a frame ten

feet by six, and mushrooms have been produced two pounds in weight.

Hampers or boxes containing about four inches depth of fresh, dry stable-dung, or, in preference, of a mixture of three barrow-loads of horse-dung, and one perfectly dry cow-dung, well pressed in, may be set in some situation where neither damp nor frost can enter. After two or three days, or as soon as heat is generated, the spawn may be inserted; a mushroom brick is to be broken into three equal parts, and each fragment to be laid four inches asunder on the surface of the dung; after six days, an inch and a half depth of fresh dung to be beaten down as before. In the course of a fortnight, or as soon as it is found that the spawn has run nearly through the whole of the dung, fine earth must be applied two inches and a half thick, and the surface made level. In five or six weeks the mushrooms will begin to come up, and if the mould appear dry, may then be gently watered, the water being slightly heated. Each box will continue in production six or eight weeks.

Mr. J. Oldaker, late gardener to the Emperor of Russia, introduced a house



purposely constructed for the growth of the mushroom. The house is found of great use in storing broccoli during the winter. It is usually built against the back wall of a forcing-house, as in the annexed plan; but if built unconnected with another building, the only necessary alteration is to have a hipped instead of a lean-to roof. The outside wall, *g h*, should be eight feet and a half high for

four heights, the width ten feet within the walls, which is most convenient, as it admits shelves three feet and a half wide on each side, and a space up the middle three feet wide, for a double flue, and wall upon it.

When the outside of the house is finished, a floor or ceiling is made over it, as high as the top of the outside walls, of boards one inch thick, and plastered on the upper side, *e e*, with road-sand, well wrought together, an inch thick; square trunks, *f*, being left in the ceiling, nine inches in diameter, up the middle of the house, at six feet apart, with slides, *s*, to ventilate with when necessary.

Two single brick walls, *v v*, each five bricks high, are then to be erected at three feet and a half from the outside walls, to hold up the sides of the floor-beds, *a a*; and form at the same time one side of the air flues. Upon these walls, *v v*, are to be laid planks four inches and a half wide, and three inches thick, in which are to be mortised the standards, *k k*, which support the shelves. These standards to be three inches and a half square, and four feet and a half asunder, fastened at the top, *k k*, into the ceiling. The cross bearers, *i i*; *i i*, which support the shelves, *o o*, must be mortised into the bearers and into the walls; the first set of bearers being two feet from the floor, and each succeeding one to be at the same distance from the one below it. The shelves, *o o*, are to be of boards one inch and a half thick, each shelf having a ledge in front, of boards one inch thick and eight inches deep, to support the front of the beds, fastened outside the standards. The flue to commence at the end of the house next the door, and running the whole length, to return back parallel, and communicate with the chimney; the walls of the insides to be the height of four bricks laid flat, and six inches wide; this will allow a cavity, *t*, on each side betwixt the flues, two inches wide, to admit the heat from their sides into the house. The middle cavity, *x y*, should be covered with tiles, leaving a space of one inch betwixt each. The top of the flue, including the covering, should not be higher than the walls that form the fronts of the floor-beds. The wall itself is covered with three rows of tiles, the centre one covering the cavity, *x y*, as before mentioned; the outside cavities, *t t*, are left uncovered.

As the compost, the formation of the beds, &c., are very different from the common practice, we will give Mr. Oldaker's directions. The compost employed is fresh horse-dung, which has been subject neither to wet nor fermentation, cleared of the long straw, but one-fourth of the short litter allowed to remain, with one-fourth of dry turf-mould, or other fresh earth.

The beds are to be made by placing a layer of the above compost, three inches thick, on the shelves and floor, which must be beaten as close as possible with a flat mallet, fresh layers being added and consolidated until the bed is seven inches thick, and its surface as level as possible. If the beds are thicker, the fermentation caused will be too powerful; or if much less, the heat will be insufficient for the nourishment of the spawn. As soon as the beds intimate a warmth of 80° or 90°, they are to be beaten a second time, to render them still more solid, and holes made with a dibble, three inches in diameter and nine apart, through the compost, in every part of the beds; these prevent too great a degree of heat arising and causing rottenness.

If the beds do not attain a proper heat in four or five days after being put together, another layer, two inches thick, must be added. If this does not increase the heat, part of the beds must be removed, and fresh horse-droppings mixed with the remainder. The spawn is to be inserted in three or four days after making the holes, when the thermometer indicates the desired degree of heat, the insides of the holes are dry; and while the heat is on the decline, every hole is to be filled, either with lumps or fragments of spawn, well beaten in, and the surface made level.

In a fortnight, if the spawn is vegetating freely, and the beds are required for immediate production, they may be earthed over; but those for succession left unearthed, three or four weeks in summer, and four or five in winter. If the spawn is introduced in hot weather, air must be admitted as freely as possible until the spawn has spread itself through the beds.

The soil employed should be maiden earth, with turf well reduced; neither too dry nor too wet, otherwise it will not be capable of being beaten solid. It must be laid regularly over the beds two inches

thick. From the time of earthing, the room is to be kept at a temperature of 50° or 55°. If higher, it will weaken or destroy the spawn; if lower, it will vegetate slowly; and if watered in that state, numbers of mushrooms will be prevented attaining perfection. Water must be applied with extreme caution, being nearly as warm as new milk, and sprinkled over the beds with a syringe or small watering-pot. Cold water destroys both the crop and the beds. If suffered to become dry, it is better to give several light than one heavy watering.

Beds thus managed will bear for several months; and a constant supply of mushrooms kept up by earthing but one bed or more every two or three months.

If, when in full production, the mushrooms become long-stemmed and weak, the temperature is certainly too high, and air must be proportionately admitted. As the beds decline, to renovate them the earth must be taken off clean, and if the dung is decayed they must be reformed, any good spawn being preserved that may appear; but if the beds are dry, solid, and full of good spawn, a fresh layer of compost, three or four inches thick, must be added, mixed a little with the old, and beaten solid as before.

Mushrooms may be grown in a cellar, or other vaulted place, with equal success, and not unfrequently with a greater advantage, the same rules being adopted; but no fire is necessary, and less water.

Spawn: where to be found.—Spawn is constituted of masses of white fibres, arising from the seeds of mushrooms that have fallen into situations suitable for their germination, from which it is to be obtained: such places are stable dung-hills, dungy horse-rides in stable-yards, horse mill-tracks, dry spongy composts: the droppings of hard-fed horses also produce it in greater abundance than the dung of any other animal, and more sparingly under sheds, where horses, oxen, or sheep have been kept. The dung of the two latter affords it in greater perfection than that of grass-fed horses. It has also been found in pigeons' dung; but the most certain mode of obtaining it is to open the ground about mushrooms growing in pastures, though it is said not to be so productive.

Time of Collecting.—July, August, and September, it being reckoned in the greatest perfection in this last month. It

may be found, however, and should be collected, when it appears in the spring. It generally occurs spread through the texture of cakes, or lumps of dry, rotted dung. Put it in a heap under a dry shed; and a current of air, passing through the shed, is of great utility. If kept dry, spawn may be preserved three or four years; if damp, it will either vegetate before being planted or putrefy.

Spawn must not be so far advanced in vegetation as to appear in threads or fibres; for, when in this state, it is no longer applicable to a mushroom-bed; it may produce a mushroom if left to itself, but otherwise is useless. Spawn proper for inserting in a bed should have the appearance of indistinct white mould.

May be raised.—Spawn is capable of being raised artificially. The following is the manner:—Two barrow-loads of cow-dung, not grass-fed, one load of sheep's-dung, and one of horses', well-dried and broken so small as to pass through a coarse sieve, are well mixed, and laid in a conical heap during March, in a dry shed, being well trod as it is formed, to check its heating excessively. This heap is covered with hot dung, four inches thick, or only with mats if the shed is warm; for here, as in all the stages of growth, the heat should only range between 55° and 60°. In about a month the heap is examined; and if the spawn has not begun to run, which is shown by indistinct white fibres pervading its texture, another covering, of equal thickness to the first, is applied over the old one; in another month it will indubitably make its appearance. The time varies from three to ten weeks.

May be increased.—If a small quantity of spawn only can be collected, it may be increased in the following methods, the first of which is chiefly recommendable on account of its simplicity and facility of adoption:—

Small pieces of the spawn may be planted a foot asunder, just beneath the surface of the mould of a cucumber-bed constructed in the spring. In about two months the surface of the spawn will assume a mouldy appearance; it may then be taken up, with the earth adhering to it, and when dried stored as before directed.

The second mode is variously practised. In the course of May a heap of the droppings of cows, sheep, and horses, or any one or two of them, without the

admixture of any undecomposed straw, is to be collected, and one-fifth of road-scraping with one-twentieth of coal-ashes added, the whole being mixed together with as much of the drainings from a dunghill as will make it of the consistency of mortar. Being well incorporated, it is then to be spread in a dry, sheltered, airy place, on a smooth surface, and beaten flat with a spade. When become of the consistency of clay, it is to be cut into slabs about eight inches square, a hole punched half through the middle of each, and piled to dry, an opening being left between every two bricks. When perfectly dry, a fragment of the spawn is to be buried in the hole previously made: it will shortly spread through the whole texture of the slabs, if kept in a warm, dry place, when each may be broken into four pieces, and when quite dry laid on shelves—separate, and not in heaps, otherwise a bed will be formed for the spawn to run in. Mr. Wales recommends the composition to consist of three-parts horse-dung without litter, two of rotten tree-leaves, two of cow-dung, one of rotten tanner's bark, and one of sheep's dung, mixed to the consistency of mortar, and moulded in small frames like those used by brick-makers, six inches long, four broad, and three deep. Three holes to be made half through the bricks, an inch apart, with a blunt dibble, for the reception of the spawn. They should be put on boards for the convenience of moving abroad during fine days, as they must be made perfectly dry, which they often appear to be on the outside when they are far otherwise internally. Before they are perfectly dry they require great care in handling and turning, from their aptitude to break; but in about three weeks, if dry weather, when perfectly dried, they become quite firm. To pervade them with the spawn, a layer of fresh horse-litter, which has laid in a heap to sweeten, as for a hotbed, must be formed, six inches thick, in a dry shed. On this a course of the bricks is to be laid, and their holes completely filled with spawn; and, as the bricks are laid in rows upon each other, the upper side of each is to be scattered over with some of the same. The bricks are not placed so as to touch, so that the heat and steam of the dung may circulate equally and freely. The heap is to terminate with a single brick, and when completed,

covered with a layer, six inches thick, of hot dung, to be reinforced with an additional three inches after a lapse of two weeks. The spawn will generally have thoroughly run through the bricks after another fortnight. If, however, upon examination, this is not found to be the case, they must remain for ten days longer. The bricks being allowed to dry for a few days before they are stored, will then keep for many years.

Mr. Oldaker recommends the bricks to be made of fresh horse-droppings, mixed with short litter, to which must be added one-third of cow-dung, and a small portion of earth, to cement them together. The spawn to be inserted when they are half dry.

Quantity required.—One bushel of spawn is required for a bed five feet by ten; two bushels for one double that length; and so on in proportion.

MUSK-AKRO. *Hibiscus abelmoschus*.

MUSK-FLOWER. *Mimulus moschatus*.

MUSSE'NDA. The Cingalese name of *M. frondosa*. Nat. ord., *Cinchonads* [*Cinchonaceæ*]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Gardenia*.)

Stove evergreens. Cuttings in sandy soil, in heat, under a glass, in May; loam and peat. Winter temp., 50°; summer, 60° to 85°.

M. coccinea (scarlet). 20. Red. August. Trinidad. 1825.

— *corymbosa* (corymbed). Orange. May. E. Ind. 1827.

— *frondosa* (leafy). 8. Yellow. August. E. Ind. 1814.

— *glabra* (smooth). 6. Orange. July. E. Ind. 1820.

— *macrophylla* (large-leaved). 8. Orange. May. Nepaul. 1827.

— *speciosa* (showy). 6. Red. August. Trinidad. 1820.

MUSTARD (*Sinapis alba*) succeeds best in a fine, rich, mouldy loam. In early spring, and late in autumn, the situation should be sheltered, and, during the height of summer, shaded from the meridian sun.

Sowing, for salading, may be throughout the year. From the beginning of November to the same period of March, in a gentle hotbed, or in the corner of a stove. From the close of February to the close of April it may be sown in the open ground, on a warm, sheltered border, and from thence to the middle of September in a shady one. For salading, sow in flat-bottomed drills, about a quarter of an inch deep, and six inches apart. The seed cannot well be sown too thick. The earth which covers the seed

should be very fine. Water must be given in dry weather, as a due supply of moisture is the chief inducement to a quick vegetation. The sowings are to be performed once or twice in a fortnight, according to the demand. Cress (*Lepidium sativum*) is the most constant accompaniment of this salad-herb; and as the mode of cultivation for each is the same, it is only necessary to remark that, as cress is rather slower in vegetating than mustard, it must, for the obtaining them in perfection at the same time, be sown five or six days earlier. Cut for use whilst young, and before the rough leaves appear.

To obtain Seed, sow thin. When the seedlings have attained four leaves, thin them to eight or nine inches apart. If dry weather occurs at the time of flowering, water may be applied with great advantage to their roots. The plants flower in June, and are fit for cutting when their pods are brown. They must be thoroughly dried before threshing and storing.

Forcing.—For forcing, sow in boxes or pans, even if a hotbed is appropriated to the purpose. Pans of rotten tan are to be preferred to pots or boxes of mould; but whichever is employed, the seed must be sown thick, and other directions attended to, as for the open-ground crops. The hotbed need only be moderate.

MUTISIA. (Named after C. Mutis, a South American botanist. Nat. ord., *Compositæ* [*Asteraceæ*]. Linn., 19-*Syngenesia* 2-*Superflua*. Allied to *Barnadesia*.)

Stove climbers. Cuttings of half-ripened shoots in May, in sand, under a bell-glass, and in a gentle bottom-heat. Common stove temp. *M. latifolia* should be tried against a wall.

M. arachnoides (cobweb-like). 6. Red. July. Brazil. 1823.

— *ilicifolia* (holly-leaved). 10. S. Amer. 1832.

— *latifolia* (broad-leaved). 10. Pink, yellow. September. Valparaiso. 1832.

MY'AGRUM. (From *myia*, a fly, and *agra*, capture; referring to the clamminess of the plant. Nat. ord., *Cruciferae* [*Brassicaceæ*]. Linn., 15-*Tetradynamia*. Allied to *Isatis*.)

Hardy annual. Seeds in open border, in April.

M. perfoliatum (leaf-stem-pierced). 4. Pale yellow. June. France. 1648.

MYA'NTHUS. Flywort. (From *myia*, a fly, and *anthos*, a flower; its appearance when dried. Nat. ord., *Orchids* [*Orchidaceæ*]. Linn., 20-*Gynandria* 1-*Monandria*.)

Flowers of *M. barbatus* and *Monachanthus viridis* have been produced on a spike of *Cat-*

se'tum, showing the uncertainty of the laws on which genera and species are founded in Orchids. *Catuse'tum* being the older name, *Monachanthus* and *Myanthus* have been united to it. See *CATASE'TUM*.

MYCARA'NTHES. (An orchid, allied to *Eria*. Same derivation as *Myanthus*. For culture, see *CATASE'TUM*.)

M. obli'qua (twisted-leaved). White. Singapore. 1840.

MYGI'NDA. (Named after *C. Mygind*, a German botanist. Nat. ord., *Spindle-trees* [Celastraceæ]. Linn., 4-*Tetrandria* 3-*Tetragynia*. Allied to *Elæodendron*.)

Evergreen shrubs, all white-flowered but one. *M. myrtifo'lia* is hardy; propagated by cuttings of the ripened shoots in sand, under a hand-light, in autumn; the others require stove-treatment, and are propagated by ripe shoots in sand, under a bell-glass, in heat; loam and peat, sandy and fibry.

M. integrifo'lia (whole-leaved). 4. Martinique. 1826.

— *latifo'lia* (broad-leaved). 4. April. W. Ind. 1795.

— *myrtifo'lia* (myrtle-leaved). 4. June. N. Amer. 1818.

— *Rhaco'na* (Rhacoma). 4. Jamaica. 1798.

— *urago'sa* (diuretic). 4. Purple. August. S. Amer. 1790.

MYLOCA'RYUM. Buckwheat-tree. (From *myle*, a mill, and *karyon*, a nut; having four-winged seeds. Nat. ord., *Cyrrillads* [Cyrillaceæ]. Linn., 10-*Decandria* 1-*Monogynia*.)

Half-hardy evergreen shrubs. Cuttings of half-ripened shoots in sand, under a glass; sandy loam and dried leaf-mould; sheltered, dry, warm border, or the protection of a cold pit in winter.

M. ligustri'num (privet-like). 6. White. May. Georgia.

MYO'PORUM. (From *myo*, to shut, and *poros*, a pore, or opening; referring to the transparent spots on the leaves. Nat. ord., *Myoporads* [Myoporaceæ]. Linn., 14-*Didynamia* 2-*Angiospermia*.)

Greenhouse, white-flowered, evergreen shrubs, from New South Wales. Cuttings of the points of shoots, getting firm at their base, in sand, under a bell-glass, in April; loam and peat, fibry and sandy, with pieces of charcoal intermixed. Winter temp., 38° to 48°. *M. parvifo'tium* and others would, no doubt, succeed against a wall, where protection could be given in winter.

M. acumina'tum (pointed-leaved). 3. 1812.

— *crassifo'tium* (thick-leaved). 1½. New Zealand. 1822.

— *diffu'sum* (spreading). 3. April.

— *elli'pticum* (oval-leaved). 2. February. 1789.

— *insula're* (island). 3. February. 1800.

— *monta'num* (mountain). 2. 1823.

— *opposito'lium* (opposite-leaved). 3. 1803.

— *parvifo'tium* (small-leaved). 1803.

— *serra'tum* (saw-leaved). 6. White, purple. May.

— *tubercula'tum* (tubercled). 3. 1803.

MYOSO'TIS. Forget-me-not. (From

mys, a mouse, and *otis*, an ear; resemblance of the leaves. Nat. ord., *Borageworts* [Boraginaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*.)

Seed for annuals, and also for the perennial herbaceous species; most of the latter freely, by dividing the root in spring; the scarcer ones by cuttings in a shady place, in summer, under a hand-light; moist places, by the side of ditches and ponds, suit most of them. *M. pulu'stris* is the true Forget-me-not. It, as well as others, may be treated like alpine plants in winter, and have a saucer of water below the pot in summer, when they will bloom long and well.

HARDY HERBACEOUS.

M. alpe'stris (alpine). ½. Blue. July. Switzerland. 1818.

— *Azo'rica* (Azorean). 1. Dark blue. August. Azores. 1846.

— *azu'rea* (light blue). Blue. June. Corvo. 1842.

— *cæspito'sa* (tufted). ¾. Blue. June. Britain.

— *macrocal'yx* (large-calyxed). ¾. Blue. June. Britain.

— *interme'dia* (intermediate). ½. Blue. April. Britain.

— *na'na* (dwarf). ½. Blue. July. Europe. 1800.

— *palu'stris* (marsh). 1. Blue, yellow. July. Britain.

— *re'pens* (creeping). 1. Pale blue. June. Britain.

— *rupi'cola* (rock). Blue. Scotland.

— *sparsi'flora* (scattered-flowered). 1½. Blue. May. South France. 1822.

HARDY ANNUALS.

M. arve'nsis a'tha (white-corn-field). ½. White. June. Britain.

— *austra'lis* (southern). Blue. June. N. S. Wales. 1824.

— *Califo'rnica* (Californian). 1½. White. August. California. 1837.

— *clava'ta* (club-leaved). Blue. June. Siberia. 1829.

— *colli'na* (hill). ½. Blue. May. Britain.

— *commuta'ta* (changed). Blue. June. Europe. Biennial.

— *litora'lis* (sea-shore). Blue, yellow. April. Caspian Sea. 1836.

— *peduncula'ris* (long-flowered-stalked). 1½. Blue. June. Astracan. 1824.

— *ungula'ta* (clawed). Blue. June. Siberia. 1822.

MY'RCIA. (A name of *Venus*. Nat. ord., *Myrtleblooms* [Myrtaceæ]. Linn., 12-*Icosandria* 1-*Monogynia*. Allied to *Myrtus*.)

Stove white-flowered evergreens. Cuttings of stubby young shoots, getting a little firm at their base, in sand, under a bell-glass, and in a mild bottom-heat, in May; sandy peat and fibry loam, with charcoal nodules to keep it open. Winter temp., 50° to 60°; summer, 60° to 80°.

M. a'cris (sharp-flavoured). 20. June. W. Ind. 1759.

— *bracte'ata* (bracted). 4. May. Brazil. 1824.

— *cori'cea* (leathery-leaved). 4. Carribean Isles. 1759.

— *crassine'rvia* (thick-nerved). May. Guiana. 1780.

— *pimento'des* (allspice-like). 20. May. W. Ind.

— *pseu'do-mi'ni* (false-mini). May. Brazil. 1822.

— *soro'ria* (sister). 5. May. Trinidad. 1822.

— *splendens* (shining). 12. May. Hispaniola. 1822.

MYRIA'CTIS. (From *myrios*, a myriad,

and *aktin*, a sunbeam; referring to the florets. Nat. ord., *Compositae* [Asteraceæ]. Linn., 19-*Syngenesia* 2-*Superflua*. Allied to *Bellis*.)

Half-hardy herbaceous. Seeds in spring, in a gentle heat; division of the plant as growth commences; sandy loam; the protection of a cold pit will generally be necessary in winter.

M. Gmelini (Gmelin's). White. June. Persia. 1836.

MYRIADE'NUS. (From *myrios*, a myriad, and *aden*, a gland; the leaves are thickly beset with glands. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 17-*Diadelphia* 4-*Decandria*.)

Stove biennial. Seeds sown at the end of August in a hotbed; seedlings potted off, and kept over the winter in a medium temperature of 50°, and rather dry, and potted again in spring, will flower in the beginning of summer; sown in spring in a hotbed, and similarly treated, they will bloom towards autumn; light, rich, sandy soil.

M. tetraphyllus (four-leaved). 1. Yellow. July. Jamaica. 1818.

MYRICA. Candleberry Myrtle. (From *myrio*, to flow; inhabiting the banks of rivers. Nat. ord., *Galeworts* [Myricaceæ]. Linn., 22-*Diæcia* 4-*Tetrandria*.)

The berries of *M. cerifera* yield a large proportion of wax, of which candles are made; hence the name. Greenhouse kinds, by cuttings under glass, in a shady place, in autumn and spring, but without bottom-heat; peat, moist and sandy. Hardy kinds, by seeds sown as soon as ripe, by layers, by cuttings, and by suckers and division. The *gale* is one of our hardiest plants, and is used for many purposes, such as placing its leafy, dried twigs among clothes to give them an agreeable scent, and keep away moths, and to banish vermin from beds. The berries put into beer render it as intoxicating as those of the *Coquecuis Indicus*, and, when distilled while they are fresh, they yield an essential oil. All like rather moist, sandy peat.

HARDY SHRUBS.

M. cerifera (wax-bearing). 8. May. N. Amer. 1699. Deciduous.

— *latifolia* (broad-leaved). 6. May. N. Amer. 1730. Evergreen.

— *gale* (sweet-gale). 4. May. Britain. Deciduous.

GREENHOUSE EVERGREEN SHRUBS.

M. esculenta (eatable-berried). 20. May. Neapaul. 1817.

— *hirsuta* (hairy). June. Cape of Good Hope.

— *Mexicana* (Mexican). 8. February. Mexico. 1823.

— *quercifolia* (oak-leaved). 3. June. Cape of Good Hope. 1752.

MYRICARIA. (From *myrike*, the Greek name of the Tamarisk. Nat. ord., *Tamarisks* [Tamaricaceæ]. Linn., 16-*Monadelphia* 5-*Ocandria*.)

Hardy, pink-flowered, evergreen shrubs. Cuttings of young shoots in spring or autumn, in sandy soil, under a bell-glass; or, if under a hand-light, all the better; sandy loam and leaf-mould, and all the better for a little peat.

M. Dahurica (Dahurian). 6. Dahuria. 1816.
— *Germanica* (German). 8. July. Germany. 1562.

MYRIOPHY'LLUM. Water-Milfoil. (From *myrios*, a myriad, and *phyllon*, a leaf. Nat. ord., *Hippurids* [Haloragaceæ]. Linn., 21-*Monæcia* 9-*Polyandria*. Allied to *Hippuris*.)

Hardy perennial, British water-plants, suitable for the margins of lakes, ponds, &c. Chiefly by division; ponds and ditches; interesting little aquatics.

M. alterniflorum (alternate-flowered). 1. July. — *pectinatum* (comb-leaved). Rose. July.

— *spicatum* (spiked). 1. Red. July.

— *verticillatum* (whorled). 1. Green. July.

MYRISTICA. Nutmeg. (From *myristicos*, sweet-smelling. Nat. ord., *Nutmegs* [Myristicaceæ]. Linn., 22-*Diæcia* 13-*Monadelphia*.)

Stove evergreens. Cuttings of ripened shoots in sand, under a bell-glass, and in a sweet bottom-heat; sandy loam and fibry peat. Winter temp., 55° to 60°; summer, 60° to 85°.

M. futua (tasteless). 30. Green, white. Surinam. 1812.

— *mosehatia* (musky. True Nutmeg). 30. Pale yellow. E. Ind. 1795.

— *sebifera* (wax-bearing). 10. Yellow, green. Guiana.

MYRO'DIA. (From *myron*, fragrant balsam, and *odme*, smell. Nat. ord., *Sterculiads* [Sterculiaceæ]. Linn., 16-*Monadelphia* 8-*Polyandria*. Allied to *Helicteres*.)

Stove evergreen. Cuttings of half-ripened shoots in sand, under a bell-glass, and in heat; rich, sandy loam. Winter temp., 55°; summer, 60° to 85°.

M. turbinata (top-shaped-calyxed). 6. White. W. Ind. 1793.

MYROSPE'RMUM. (From *myron*, myrrh, or aromatic balsam, and *sperma*, a seed; the seeds yield a strong-smelling resin. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 10-*Decandria* 1-*Monogynia*. Allied to *Sophora*.)

This is the genus which produces the Balsam of Tolu and Balsam of Peru, used in perfumery and in the preparation of lozenges. Stove evergreen trees. Cuttings of half-ripened shoots in sand, in summer, under a bell-glass, and in bottom-heat; loam and peat, with an addition of silver sand and leaf-mould. Winter temp., 55°; summer, 60° to 85°.

M. frutescens (shrubby). 10. Rose. May. Caraccas. 1824.

— *Peruiferum* (Peru-balsam-bearing). 40. White. Peru. 1824.

— *pubescens* (downy). 40. White. Carthage. 1820.

— *Toluiferum* (Tolu-bearing). 40. Cream. S. Amer. 1733.

MYRRHIS. Myrrh. (From *myrrh*, myrrh, or perfumed balsam. Nat. ord., *Umbellifers* [Apiaceæ]. Linn., 5-*Pentandria* 2-*Digynia*. Allied to *Scandix*.)

This is the British Myrrh, formerly used in various ways. Hardy herbaceous. Seeds, dividing at the root, and slips inserted early in spring in a shady place; common garden-soil.

M. odorata (sweet-scented). 24. White. May. Britain.

MYRSINE. (The ancient name of myrrh. Nat. ord., *Ardisiads* [*Myrsinaceæ*]. Linn., 23-*Polygamia* 2-*Diœcia*. Allied to *Ardisia*.)

Greenhouse evergreens. Cuttings of stubby shoots before they are quite ripe, in sand, under a glass, in heat; fibry loam and sandy peat. Winter temp., 38° to 48°.

M. Africa'na (African). 4. Brown. May. Cape of Good Hope. 1691.

— *retusa* (bent-back-leaved). 2. White, green. June. Cape of Good Hope. 1788.

— *bifaria* (two-rowed-leaved). 20. White, pink. January. Nepaul. 1822.

— *Canarie'nsis* (Canary-Island). 30. Whitish. Teneriffe. 1820.

— *capitellata* (small-headed). 30. Green. January. Nepaul. 1822.

— *coriacea* (leathery). 8. December. Jamaica. 1770.

— *ilicifolia* (holly-leaved). 1826.

— *melanophleas* (black-paper). 3. White, green. Cape of Good Hope. 1783.

— *mitis* (mild). 6. White. July. Cape of Good Hope. 1692.

— *Sama'ra* (Samara). 3. White, green. Cape of Good Hope. 1770.

— *semiserrata* (half-saw-edged). 30. Pink. January. Nepaul. 1822.

— *subspindsa* (slightly-spined). 20. Nepaul. 1823.

— *variabilis* (variable). 3. July. N. S. Wales. 1824.

MYRSIPHYLLUM. (From *myrsine*, myrrh, and *phyllon*, a leaf; aromatic leaves. Nat. ord., the Asparagus section of *Lilyworts* [*Liliaceæ*]. Linn., 6-*Hexandria* 1-*Monogynia*.)

Greenhouse deciduous twiners, with greenish-white flowers, from Cape of Good Hope. Division of the root in spring; sandy loam and dried leaf-mould. Winter temp., 40° to 48°.

M. angustifolium (narrow-leaved). 6. July. 1752.

— *asparagoides* (asparagus-like). 6. June. 1702.

MYRTUS. The Myrtle. (From *myron*, signifying perfume. Nat. ord., *Myrtle-blooms* [*Myrtaceæ*]. Linn., 12-*Icosandria* 1-*Monogynia*.)

The French perfume called *Eau d'Ange* is obtained from the distilled water of myrtle-flowers; and myrtle-berries and flower-buds are eaten in Italy for pepper. Evergreens, and all white-flowered but two. Cuttings of half-ripened shoots in sandy soil, under a glass; sandy loam and a little peat or leaf-mould, or very old, rather dry cow-dung. Winter temp., 38° to 45°. The stove kinds merely require a higher temperature. The varieties of *communis* are propagated by cuttings, or by grafting and budding on the commoner kinds. In the south of England the myrtle flourishes against a wall; but north of London, in such a position, it requires protection in winter.

STOVE EVERGREENS.

M. biflora (two-flowered). 10. May. Jamaica. 1759.

— *boxifolia* (box-leaved). 6. Isle of Bourbon. 1826.

M. dumosa (bushy). 3. June. W. Ind. 1793.

— *Gregii* (Greg's). 6. Dominica. 1776.

— *mespiloides* (medlar-like). 50. Isle of Bourbon. 1826.

— *obscura* (doubtful). 6. July. Maranham. 1823.

— *orbiculata* (round-leaved). 6. Mauritius. 1823.

— *virgultosa* (twiggy). 6. July. Jamaica. 1787.

GREENHOUSE EVERGREENS.

M. affinis (kindred). 6. Purple. June. China. 1823.

— *bullata* (blistered-leaved). 18. White. July. New Zealand.

— *communis* (common). 6. June. South Europe. 1597.

— *Ba'tica* (Bætic). 6. July. South Europe. 1597.

— *Belgica* (broad-leaved-Dutch). 6. July. South Europe. 1597.

— *flore-pieno* (double-flowered). 6. July. South Europe. 1597.

— *Ita'lica* (Italian). 6. July. South Europe. 1597.

— *Lusia'nica* (Portuguese). 6. July. South Europe. 1597.

— *maculata* (spotted). 6. July. South Europe. 1597.

— *mucronata* (pointed-leaved). 2. July. South Europe. 1597.

— *Roma'na* (Roman). 6. July. South Europe. 1597.

— *Tarentina* (Tarentine). 6. July. South Europe. 1597.

— *variegata* (variegated). 6. July. South Europe. 1597.

— *melastomoides* (melastoma-like). 15. Moreton Bay.

— *tenuifolia* (fine-leaved). 5. N. Holland. 1824.

— *tomentosa* (woolly-leaved). 6. Purple. June. China. 1776.

— *trine'rvia* (three-nerved). 5. N. Holland. 1824.

N.

NAGE'LLA. (Named after *Nageli*, a German botanist. Nat. ord., *Appleworts* [*Pomaceæ*]. Linn., 12-*Icosandria* 2-*Di-pentagynia*. Allied to *Cotoneaster*.)

A genus founded on *COTONEASTER DENTICULATA*, which see.

NAILS for training wall-trees are best made of cast iron, being the cheapest, stoutest, and most enduring. Before using they should be heated almost to redness, and then be thrown into cold linseed-oil. When dry, they have a varnish upon them which preserves them from rusting, and prevents the mortar of the wall sticking to them so corrosively as it does if they are un-oiled. In drawing old nails from walls, the mortar is not so much disturbed if the nails are driven in a little further before they are extracted. Old nails may be renovated by being heated to redness, and then thrown into water: this removes from them the mortar, and then they may be again heated and put into oil as before directed. The cast-iron nails used by gardeners are known to the ironmonger as wall-

nails, and are described as 2 $\frac{1}{2}$, 3, 4, and 5 lb. wall-nails, accordingly as 1,000 of them are of those weights. Nails, in most cases, require to be driven only a very little way into the mortar, and walls then do not become defaced by them for many years. In all summer nailing of peach-trees, roses, &c., the point only requires to be driven in, so that the nail may be easily withdrawn by the fingers.

NA'MA. (From *nama*, a stream of water; the natural place of growth. Nat. ord., *Hydrophylls* [*Hydrophyllaceæ*]. Linn., 5-*Pentandria* 2-*Digynia*. Allied to *Hydrolea*.)

Seeds sown in a hotbed, in March and April, and bloomed in the greenhouse, after being hardened; divisions and cuttings of the plant in spring; sandy loam and fibry peat, with sand and charcoal to keep it open. Common stove and greenhouse temperature.

N. *Jamaicensis* (Jamaica). White, blue. June. Jamaica. 1812. Stove annual.
— *undulata* (waved-leaved). 1. Violet. June. Mexico. 1826. Greenhouse herbaceous.

NANDI'NA. (From *nandin*, the Japanese name. Nat. ord., *Berberids* [*Berberidaceæ*]. Linn., 6-*Hexandria* 2-*Digynia*. Allied to *Leontice*.)

Greenhouse evergreen shrub. Cuttings of ripened shoots in sand, under a hand-light, and not hurried; loam and sandy peat; a sheltered place, a cold pit, or a greenhouse in winter. An interesting plant, with white petals, yellow anthers, and red fruit.

N. *domestica* (domestic). 6. White. July. China. 1804.

NAPOLÉON'NA. (Named after *Napoleon Buonaparte*. Nat. ord., *Napoleonvorts* [*Belvisiaceæ*]. Affinity a disputed point among botanists. Dr. Lindley has it in the Myrtle alliance, next to the Mangroves. See its History in *The Cottage Gardener*.)

Stove evergreen shrub. Cuttings of half-ripened shoots, two to four inches long, in sand, under a bell-glass, and in a mild bottom-heat, giving air at night, to prevent damping; sandy peat and fibry loam. Winter temp., 55° to 60°; summer, 60° to 90°, and moist.

N. *imperialis* (imperial). 6. Apricot, crimson. May. Sierra Leone. 1844.

NAPOLÉON'S WEEPING WILLOW. *Salix Napoleon'na*.

NARAY'IA. (From *narayael*, its Cingalese name. Nat. ord., *Crowfoots* [*Ranunculaceæ*]. Linn., 13-*Polyandria* 6-*Polygynia*. Allied to *Atragene*.)

Stove evergreen climber. Cuttings of half-ripened shoots in sand, under a glass, in heat; sandy peat and fibry loam. Winter temp., 50° to 60°; summer, 60° to 85°.

N. *Zeylanica* (Ceylon). 12. Yellow. Ceylon. 1796.

NARC'SSUS. (Name of a youth, said to have been changed into this flower. Nat.

ord., *Amaryllids* [*Amaryllidaceæ*]. Linn., 6-*Hexandria* 1-*Monogynia*.)

This genus of hardy bulbs, like the *Rhododendron*, has so multiplied from seeds, that it is utterly impossible to make out what are, and what are not, true species. Salisbury and Haworth gave generic names to the different groups; but their definitions have broken down. For all practical purposes, the whole may be included under the old name *Narcissus*. Seeds, but chiefly by offsets from the bulbs, which, in most kinds, are freely produced; rich, sandy loam, with a little leaf-mould. Those to be forced early should be removed out of the ground as soon as the leaves decay, and be kept dry and cool until potting-time, in autumn.

- N. *Aj'ax* (Ajax). 1. Yellow. March.
— *albicans* (whitening). $\frac{1}{2}$. Pale yellow. March. 1789.
— *albus* (white). 1. White, yellow. April.
— — *ple'nus* (double-orange. *Phenias*). 1. Sulphur. April.
— *angustifo'lius* (narrow-leaved). 1. White. May. South Europe. 1570.
— *aperticoro'na* (open-crowned). Yellow, orange. April. N. Africa.
— *aurantius* (orange). 1. Yellow. March. 1629.
— — *ple'nus lu'teus* (double-yellow). 1. Yellow. March. 1629.
— *bi'color* (two-coloured). 1. White, yellow. April. Spain. 1629.
— *bisfo'rus* (two-flowered). 1. White. March. Britain.
— *bi'frons* (two-faced). 1. Yellow. March. South Europe.
— *bulboco'dium* (bulbous. *Hoop-petaled*). $\frac{1}{2}$. Yellow. April. Portugal. 1629.
— *cap'ax* (capacious). $\frac{1}{2}$. Pale yellow. May.
— *ceri'nus* (wax-coloured). 1. White. April.
— *ce'rnuus* (pale-drooping). $\frac{1}{2}$. Crimson, white. March. Spain.
— — *curo'na ple'nu* (full-crowned). 1. Crimson, white. March. Spain.
— *citr'i'nus* (citron-coloured). 1. White, yellow. April.
— *compre'ssus* (flat-stalked). 1. Lilac, yellow. March. Spain.
— *co'ncolor* (one-coloured). $\frac{1}{2}$. Sulphur. April. 1820.
— *conspi'cuus* (conspicuous). $\frac{1}{2}$. Yellow. May.
— *crenula'tus* (scolloped-petaled). 1. White. April. Spain.
— *Cy'pri* (Cyprian). 1. White, yellow. March. Cyprus.
— — *coro'na ple'na* (full-crowned). 1. White, yellow. March.
— *defi'ciens* (deficient). White. South Europe.
— *Diome'des* (Diomedes?).
— *du'buis* (doubtful). White. April. France.
— *fistulo'sus* (hollow-stalked). 2. White, yellow. April.
— *floribu'ndus* (many-flowered). $1\frac{1}{2}$. White, yellow. March. Spain.
— *galanthifo'lius* (snowdrop-leaved). $\frac{1}{2}$. White. May.
— *gra'cilis* (slender). $1\frac{1}{2}$. Yellow. April.
— *grandifo'rus* (large-flowered). 1. White, yellow. April.
— *Hawo'rthia* (Haworth's). 1. Yellow. April. 1700.
— — *ple'nus sulphu'reus* (double-sulphur). 1. Sulphur. April. 1629.
— *hemina'tis* (lesser-curled-cup). 1. Yellow. March.
— *incompura'bilis* (incomparable). 1. Yellow. April. Portugal. 1629.
— *infla'tus* (swollen). $\frac{1}{2}$. Yellow. March.

N. inflatus minor (lesser). $\frac{1}{2}$. Pale sulphur. March. Spain. 1696.
 — *infundibularis* (funnel-flowered). $\frac{1}{2}$. Yellow. March.
 — *interjectus* (interjected). 1. Yellow. April. 1810.
 — *intermedius* (intermediate). $1\frac{1}{2}$. Pale yellow. March. Pyrenees.
 — *Italicus* (Italian). 1. Pale yellow. March. South Europe.
 — — *plenius* (double). 1. Cream. March. Italy.
 — — *semiplenus* (semi-double). 1. Cream. Italy.
 — *jonquilla* (jonquil). $\frac{1}{2}$. Pale yellow. April. Spain. 1596.
 — — *floré-pléno* (double-flowered). 1. Yellow. April. Spain. 1596.
 — *juncifolius* (rush-leaved). Yellow. South Europe.
 — *latifolius* (broad-leaved-orange). 1. Yellow. April.
 — *lobulatus* (small-lobed). $\frac{1}{2}$. Yellow. March.
 — *lorifolius* (strap-leaved. Two-coloured). 1. Yellow. March.
 — — *anceps* (two-edged. Two-coloured). 1. Yellow. March. 1800.
 — — *brevisfolius* (short-flowered. Two-coloured). 1. Yellow. April.
 — *lu'na* (moon). 1. White. April.
 — *Macle'ui* (Mac Leay's). $\frac{1}{2}$. Cream. March. Smyrna. 1816.
 — *major* (larger). 1. Yellow. March. Spain 1629.
 — *maximus* (largest). 1. Yellow. April.
 — *minor* (smaller). $\frac{1}{2}$. Yellow. March. Spain. '629.
 — *montanus* (mountain). 1. White. April. Portugal.
 — *moschat'us* (musky). 1. White. April. England.
 — *multiflorus* (bull-many-flowered). 1. Yellow. April.
 — — *auréus* (golden-many-flowered). 1. Yellow. April.
 — *neglectus* (neglected). White, yellow. April. Naples. 1830.
 — *niveus* (snowy). 1. White. May. South Europe.
 — *nobilis* (noble). 1. Yellow. April.
 — *nutans* (nodding). 1. Yellow. April. South Europe. 1789.
 — *obscissus* (cut-off). 1. Yellow. May. Spain.
 — *obsoletus* (obsolete). 1. White. August. Spain. 1819.
 — *obvallaris* (trenched-round). 1. Yellow. March. Spain.
 — *odor'us* (sweet-scented). 1. Yellow. May. South Europe. 1629.
 — *orientalis* (eastern). 1. White. April. Levant.
 — *papyraceus* (paper). 1. White. March.
 — — *jasmini'neus* (jasmine-like). 1. White. April.
 — *patellaris* (basin-flowered). 1. White. May. England.
 — — *exsertus* (drawn-out). 1. White. May. England.
 — — *plenius* (double). 1. White. May. England.
 — *patulus* (spreading. White Musk). 1. White. March. Spain.
 — — *albeus* (whitish. Norfolk). 1. White. March. Spain.
 — *poeticus* (poet's). 1. White. May. South Europe.
 — *primulifolius* (cowslip-cupped). 1. Yellow. March.
 — *propinquus* (allied). 1. Yellow. March. Spain. 1629.
 — *pseud-Narcissus* (bastard Narcissus. Daffodil). 1. Pale yellow. March. England.
 — — *plenis'simus* (most-double). 1. Yellow. March.
 — — *plenius* (double). 1. Yellow. March. France.
 — — *Scoticus* (Scotch). 1. Yellow. May. Scotland.

N. pulchellus (pretty). 1. Yellow. April. Spain.
 — *pus'illus* (dwarfish). $\frac{1}{2}$. Yellow. March. Spain.
 — — *floré-pléno* (double-flowered). $\frac{1}{2}$. Yellow. March. Gardens.
 — *pus'illus* (small. Jonquil). $\frac{1}{2}$. Yellow. April. 1818.
 — — *plenius* (double. Queen Anne's Jonquil). $\frac{1}{2}$. Yellow. April. 1810.
 — *Que'ttia* (Qeltian).
 — *recurvus* (curled-back-leaved). 1. White. May. South Europe.
 — *rugulosus* (wrinkled-cup). 1. Yellow. April. 1818.
 — *Sabi'ni* (Sabine's). 1. Yellow. April.
 — *semipartitus* (cloven-cupped). 1. Sulphur. March.
 — *serratus* (saw-edged). $\frac{1}{2}$. Pale yellow. March. South Europe.
 — — *sua'vis* (sweet). 1. Pale yellow. March. South Europe.
 — *similis* (similar. Jonquil). $\frac{1}{2}$. Yellow. April.
 — *spurius* (bastard). 1. Yellow. March. England.
 — *stellaris* (starry-seped). 1. White, crimson. May. 1629.
 — *striatulus* (small-channelled). $\frac{1}{2}$. Yellow. April.
 — *Tazetta* (Tazetta. Polyanthus). 1. White. March. Spain. 1759.
 — *Telamonius* (Telamon's). 1. Yellow. April.
 — — *grandiplenus* (large-double). 1. Yellow. April.
 — — *plenius* (double. Daffodil). 1. Yellow. April.
 — *tenu'ior* (slenderer). 1. Lilac, white. May. 1799.
 — *tereticaul'is* (round-stalked). $1\frac{1}{2}$. Pale yellow. March. Spain.
 — *tortuosus* (twisted-petaled). $1\frac{1}{2}$. White. April. Spain. 1629.
 — *Trewianus* (Trew's). $1\frac{1}{2}$. White, yellow. March. Spain.
 — *triandrus* (three-stamened). $\frac{1}{2}$. White. April. Portugal. 1629.
 — *tritobus* (three-lobed-Jonquil). 1. Yellow. April. South Europe. 1629.
 — *tubifolius* (tube-flowered). 1. White, yellow. March.
 — *viridifolius* (green-flowered). $\frac{1}{2}$. Green. September. Barbary. 1629.

NARCISSUS FLY. *Merodon Narcissi*.

NARTECIUM. (From *narthez*, a rod; referring to the flower-stems. Nat. ord., *Rushes* [Juncaceæ]. Linn., 6-*Hexandria* 1-Monogynia.)

Hardy herbaceous, Iris-like rushes, adapted for mixed borders of herbaceous plants. Divisions of the plant in spring; a cool border, and supplied with sandy peat, or sand and leaf-mould.

N. Americanum (American). $\frac{1}{2}$. Yellow. July. N. Amer. 1811.
 — *ossi'fragum* (bone-breaking). $\frac{1}{2}$. Yellow. July. Britain.

NASTURTIIUM. (From *nasus*, the nose, and *tortus*, tormented; referring to the hot, acrid smell. Nat. ord., *Crucifers* [Brassicaceæ]. Linn., 15-Tetradynamia. Allied to the Wallflower.)

Simple-looking plants, of no great beauty. We introduce the genus to correct the common error of calling the Indian Cress (*Tropæolum*) Nasturtiums. Hardy aquatics, with yellow flowers; seeds and division of the plant in common soil; but none are worth growing for their beauty.

N. anceps (two-edged-pod). 1. July. Britain.
 — *erectum* (upright). June. Siberia. 1837.
 — *notans* (floating). 4. July. Siberia. 1827.

NATIVE OAK. *Casuarina*.

NAU'CLEA. (From *naus*, a ship, and *kleio*, to inclose; the half-capsule, or seed-pod, in the form of a ship's hull. Nat. ord., *Cinchonads* [Cinchonaceæ]. Linn., 5-Pentandria 1-Monogynia. Allied to *Cinchona*.)

Stove evergreens, from the East Indies; cuttings of half-ripe shoots in sandy loam, under a glass, in heat; loam, sand, and peat. Usual stove temperatures.

- N. A'dina* (Adina). White. July. China. 1804.
 — *Cada'mba* (Cadamba). 20. Orange.
 — *cordifolia* (heart-leaved). 40. Yellow.
 — *microphylla* (large-leaved). Yellow. 1829.
 — *orientalis* (eastern). 30. Yellow.
 — *purpurea* (purple). 10. Purple.
 — *undulata* (waved-leaved). 20. Yellow. 1820.

NAVARRE'TTIA. (Named after a Spaniard. Nat. ord., *Phloxworts* [Polemoniaceæ]. Linn., 5-Pentandria 1-Monogynia. Allied to *Ipomopsis*.)

Hardy annuals, from California, blue-flowered, and blooming in June, except where otherwise mentioned; sow in March in open border.

- N. cotulaefolia* (cotula-leaved). 4. White. 1833.
 — *eryngioides* (eryngium-like). Chili. 1833.
 — *intertexta* (interwoven). 14. 1833.
 — *pubescens* (downy). 4. 1833.
 — *prickly-leaved*. 14. 1826.
 — *squarrosa* (spreading). 1. August. Santa Cruz. 1847.

NAVELWORT. *Cotyledon*.

NAVET, or NAVEW. (*Bra'ssica na'pus*.)

The Colesat, or Rape.

NEAPOLITAN VIOLET. *Viola odora'ta p'ulida ple'na*.

NECTARINE. (*Pe'rsica la'vis*.) The following are the best varieties, and all require a south-aspect wall. We add the months in which the fruit ripens. *Hardwick Seedling*, August; *Elruge*, August; *Violet hâtive*, August, September; *Late Newington*, September, October; *Pitmas-ton Orange*, September. For culture, see PEACH.

NECTAROSCO'RDUM. Honey Garlic. (From *nectar*, honey, and *skorodon*, garlic; referring to honey pores in the flower of this onion-like flower. Nat. ord., *Amaryllids* [Amaryllidaceæ]. Linn., 6-Hexandria 1-Monogynia. Allied to *Allium*.)

A very curious hardy bulb, growing in shady woods in Sicily, with a flower-scape three to four feet long, bearing pendulous flowers. Offsets from the bulbs; common, sandy soil.

N. Si'cutum (Sicilian). Purple, green, white. June. Sicily. 1832.

NEGRO FLY. *Athalia*.

NEGUNDO. Box Elder. (Derivation is not known. Nat. ord., *Maples* [Aceraceæ]. Linn., 22-Dioecia 5-Pentandria. Allied to the Maple.)

Hardy deciduous trees, with green flowers, from North America. Layers and seeds, which should be sown in autumn as soon as gathered; deep, moist, sandy loam. A short-lived tree, suitable for shrubberies and lawns.

N. fraxinifolium (ash-leaved-maple). 40. May. 1688.

— *crispum* (curled-leaved). 30. May. 1688.

— *violaceum* (purple). 30. May.

NE'JA. (Probably the Mexican name. Nat. ord., *Composites* [Asteraceæ]. Linn., 19-Syngenesia 2-Superflua.)

A half-hardy herbaceous Asterwort; flowering in a bed or border from May to October. Seeds, divisions; common soil; protection in a pit in winter.

N. gra'cilis (slender). 1. Yellow. Mexico. 1828.

NELI'TRIS. (From *ne*, not, and *elytron*, a seed-case; referring to the berry having no partitions. Nat. ord., *Myrtleblooms* [Myrtaceæ]. Linn., 12-Icosandria 1-Monogynia. Allied to the Pomegranate.)

Stove white-flowered, evergreen shrubs. Cuttings of half-ripened short shoots in sand, under a bell-glass, and in a gentle heat, in April or May; fibry loam, leaf-mould, peat, and sand, and a little charcoal to keep all open. Winter temp., 45° to 50°; summer, 60° to 85°.

N. Jambosella (Jambosella). 10. Society I. 1810.

— *paniculata* (panicked). May. Moluccas. 1820.

NELUMBIUM. Water Bean. (From

nelumbo, the Indian name. Nat. ord.,

Water-beans [Nelumbiaceæ]. Linn., 13-

Polyandria 6-Polygynia.)

These handsome plants are natives of still waters. The nuts of all the species are eatable and wholesome; and the North American Indians eat the root-stocks of *lutium*, which are not unlike the sweet potato. Division of the root, either just before, but better just after, growth has commenced, and better still by seeds; fresh warm water must often be supplied when the plants are growing; removing some out of the tub, and placing more in; when at rest, the soil, rich loam, may be allowed to get quite dry. Temp., when at rest, 48° to 55°; when growing and approaching flowering, 70° to 95°.

N. Cu'spicum (Caspian). Pink. Caspian Sea. 1822.

— *flave'scens* (yellowish). Yellowish. June. Egypt. 1847.

— *Jamaice'nsis* (Jamaica). Pale blue. Jamaica. 1824.

— *lutium* (yellow). Yellow. Carolina. 1810.

— *speciosum* (showy). Pink. July. India. 1787.

— *roseum* (rose-coloured). 3. Rose. June. India.

— *Tamara* (Tamara). Pink. Malabar. 1818.

NEMATA'NTHUS. (From *nema*, a thread, and *anthos*, a flower; the flowers of *longipes* hanging down from long, thread-like foot-stalks. Nat. ord., *Gesnerworts* [Gesneraceæ]. Linn., 14-Didynamia 2-Angiospermia. Allied to *Gesnera*.)

Stove evergreen climber, of considerable beauty, easily managed, still easier to increase, and offering strong inducements to the cross-breeder. Cuttings in sandy soil, kept rather dry; leaves, also,

will strike; sandy peat and turfy loam, with charcoal and dried cow-dung. Winter temp., 45° to 55°; summer, 60° to 85°.

N. chlorone'ma (green-filamented). 1½. Scarlet. July. Organ Mountains. 1841.

— *ione'ma* (violet-stemmed). Deep crimson. Tropical America. 1848.

— *longipes* (long-flower-stalked). 3. Scarlet. December. Brazil. 1841.

NEME'SIA. (Name of a plant in Dioscorides. Nat. ord., *Figworts* [Scrophulariaceæ]. Linn., 14-*Didynamia* 2-*Angiospermia*. Allied to *Hemimeris*.)

Natives of the Cape of Good Hope. Seeds sown in a slight hotbed in spring, and transplanted in May or June, or sown in May; the perennials, also, by divisions in spring, and by cuttings under a hand-light in summer; sandy loam; a cold pit, and dry in winter.

ANNUALS.

N. bicornis (two-horned). 2. Purple. July. 1774.
— *floribunda* (many-flowered). 1. White, yellow. July.

— *linearis* (narrow-leaved). 1. Rose. April. 1822.

HERBACEOUS.

N. chamædrifolia (chamædrys-leaved). 2. Purple. June. 1787.

— *fœtens* (stinking). 2. Purple. June. 1798.

— *frutescens* (shrubby). 2. Yellow. May. 1816. Evergreen.

NEMOPANTHES. (From *nemos*, a grove, and *anthos*, a flower; it being generally found in groves. Nat. ord., *Hollyworts* [Aquifoliaceæ]. Linn., 23-*Polygamia* 2-*Dicæcia*. Allied to *Prinos*.)

An ornamental, hardy, deciduous, upright-growing shrub, very little known in England, but very desirable. It was called *Plex Canadensis* and *Prinos lucida*. The flowers are small and white; but the berries are large, beautiful crimson, and very ornamental. Layers in autumn; seeds then, and in spring; common shrubby soil, but it will do better with an addition of sandy peat or leaf-mould.

N. Canadensis (Canadian). 3. May. N. Amer. 1812.

NEMOPHILA. (From *nemos*, a grove, and *phileo*, to love; from their place of growth. Nat. ord., *Hydrophylls* [Hydrophyllaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*.)

Like all the Californian annuals, well-adapted to be sown in September; the seedlings to stand over the winter, and be protected at times with evergreen boughs, to flower where sown, or to be raised in patches, and thus transplanted in spring; sown thickly in March, on a rough, rich soil, consisting of leaf-mould, rotten dung, and coarse loam, laid on a hard bottom, protected by glass or mats, and transferred to the flower-garden in April and May. Sown in April and May, in the open border, they will flower most of the summer. A few grown in pots will ornament a house or window in winter and spring. A rich, light soil suits them best, and a moist, shady situation. In watering, avoid wetting the collar of the plant.

ANNUALS.

N. atomaria (speckled). ½. White, purple. August. California. 1836.

N. aurita (ear-leaved). 1½. Purple. June. California. 1831.

— *insignis* (showy). 1½. Blue. August. California. 1833.

— *maculata* (blotched-flowered). ½. White, purple. June. California. 1848.

HERBACEOUS PERENNIALS.

N. discoidalis (disk-shaped). Purple. June. N. Amer. 1813.

— *paniculata* (panicked). ¾. Pale blue. May. N. Amer. 1813.

— *parviflora* (small-flowered). Blue. N. Amer. 1826.

— *phacelioides* (phacelia-like). 1. Blue. July. N. Amer. 1822.

NEOTTIA. (From *neottia*, a bird's-nest; referring to the interlacing of the numerous roots. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-*Gynandria* 1-*Monandria*. Allied to *Listera*.)

Ground orchids. Even the hardy kinds are interesting; division in spring; sandy peat, loam, and charcoal. Temp., for stove kinds, winter, 50° to 60°; summer, 60° to 80°.

HARDY.

N. aestivalis (summer). ½. White. September. N. Amer. 1822.

— *autumnalis* (autumnal). ½. White. September. Europe. 1800.

— *cernua* (drooping-flowered). 1. White. July. N. Amer. 1796.

— *nidus avis* (bird's-nest). 1. Brown. May. Britain.

GREENHOUSE.

N. australis (southern). ¾. Red. N. Holland. 1823.

— *plantaginæa* (plantain-leaved). 1. Red. June. Nepal. 1824.

STOVE.

N. aphylla (leafless). 1. Red. Pink. June. Trinidad. 1826.

— *bicolor* (two-coloured). 1. White. February. Trinidad. 1823.

— *elata* (tall). 2. Green. July. W. Ind. 1790.

— *glandulosa* (glanded). Green, white. January. W. Ind.

— *grandiflora* (large-flowered). White, green. April. St. Vincent. 1829.

— *macrantha* (long-flowered). White. March. W. Ind. 1827.

— *orchitoides* (orchis-like). Rose. November. Jamaica. 1826.

— *picta* (painted). 2. Green. April. Trinidad. 1805.

— *pudica* (modest). ½. Pink. November. China. 1819.

NEOTTOPTERIS. (From *neottia*, a bird's-nest, and *pteris*, a fern; founded on the Bird's-nest, or Spleenwort Fern. Nat. ord., *Ferns* [Polypodiaceæ]. Linn., 24-*Cryptogamia* 1-*Filices*.)

Ferns, with brown spores, requiring rather shaded situations. See **FERNs**.

GREENHOUSE.

N. stipitata (long-stalked). May. E. Indies.

— *vulgaris* (common). June. N. Holland. 1822.

STOVE.

N. Grevillei (Greville's). May. E. Ind.

— *musefolia* (musa-leaved). May. E. Ind.

— *philicoides* (hart's-tongue). May. E. Ind.

NEPENTHES. Pitcher Plant. (From *nepenthes*, grief-assuaging; its supposed medicinal quality. Nat. ord., *Nepenthes* [Nepenthaceæ]. Linn., 22-*Diœcia* 13-*Monadelphina*.)

Stove evergreen climbers. Seeds, when they can be obtained, which require a strong, moist heat to vegetate them in; but chiefly by little offsets, which come from near the base of the shoots; very fibry peat, old sphagnum, charcoal, and broken potsherds, particularly well-drained; the pot to be then plunged in moss, and at all times supplied, less or more, with bottom-heat and abundance of moisture. Where there are tanks or beds heated by hot water, one chief element to successful culture is obtained. Even in winter the bottom-heat should not be lower than 75°. Winter temp., 60° to 65°; summer, 60° to 90°.

- N. albo marginata* (white-margined). Singapore. 1848.
- ampullacea* (bottle-like). Green. June. Manila. 1840.
- distillatoria* (distilling. Chinese). 6. Green, yellow. China. 1789.
- Hookeriana* (Sir W. J. Hooker's). 20. Sarawak. 1847.
- laevis* (smooth). Java. 1848.
- Lindleyana* (Dr. Lindley's). 8. Purple. Borneo. 1847.
- Loddigessii* (Loddige's). Borneo. 1847.
- phyllomphora* (pitcher-leaved). 6. Green, yellow. July. China. 1820.
- Rafflesiana* (Sir Stamford Raffles'). Yellow, brown. September. Singapore. 1845.

NEPETA. Cat Mint. (Named from *Nepet*, a town in Tuscany. Nat. ord., *Labiates* [Lamiaceæ]. Linn., 14-*Didynamia* 1-*Gymnospermia*. Allied to *Lracocephalum*.)

A genus of hardy herbaceous plants, comprehending a few ornamental, with a large number of weeds; the latter we have omitted. The Ground Ivy, *Nepeta glechoma*, is still held in high estimation as a pectoral medicine in some parts of the country, and also several others of this order. Seeds, sown in spring, but chiefly by dividing the plants in the spring as growth commences; also, in rare kinds, by cuttings in summer, under a hand-light; light, sandy soil; some of the more trailing kinds do well for rock-work.

- N. amethystina* (amethystine). 1½. Blue. July. South Europe. 1816.
- ærula* (blue). 1½. Blue. May. 1777.
- Croatica* (Croatian). 1½. White. July. Hungary. 1821.
- diffusa* (spreading). 1½. Purple. July. Siberia. 1824.
- grandiflora* (large-flowered). 6. Blue. July. Caucasus. 1817.
- graveolens* (heavy-smelling). 1½. Purple. July. South Europe. 1804.
- hederacea* (ivy-like. Common). 1. Blue. May. Britain.
- — rosea* (rosy). ¾. Rose. May. England.
- variegata* (variegated-leaved). ¾. Blue. May. England.
- hirsuta* (hairy). 2. Pink. May. Hungary.
- imbricata* (imbricated). 2. Blue. July. Spain. 1820.
- latifolia* (broad-leaved). 4. Purple. July. Pyrenees. 1816.

- N. longiflora* (long-flowered). 2. Violet. July. Persia. 1802.
- macroflora* (long-tailed). 4. White, purple. July. Siberia. 1820.
- marifolia* (marum-leaved). 1. Blue. June. Spain. 1800.
- marruboides* (horehound-like). 1½. Red. July.
- multibracteata* (many-bracted). 3. Purple. July. Algiers. 1817.
- Mussini* (Mussin's). 2. Violet. July. Siberia. 1804.
- Nepetilla* (small *Nepeta*). 1. Red. July. South Europe. 1788.
- Pannonica* (Hungarian). 4. Red. September. Hungary. 1693.
- scordotis* (scordotis). 1½. Blue. July. N. Africa. 1817.
- Sibirica* (Siberian). 1. Purple. July. Siberia. 1804.
- suaveolens* (sweet-scented). 1½. Blue. July. 1817.
- teucrifolia* (teucium-leaved). 1½. Purple. July. Armenia. 1816.
- tuberosa* (tuberous-rooted). 2. Violet. July. Spain. 1683.
- violacea* (violet). 2. Blue. August. Spain. 1723.

NEPHELIUM. (An ancient name for Burdock; applied in reference to the similarity of the heads of the flowers and seeds. Nat. ord., *Soapworts* [Sapindaceæ]. Linn., 8-*Octandria* 1-*Monogynia*. Allied to *Cupania*.)

Stove evergreen fruit-trees. Seed sown in a hotbed in spring; layers and cuttings of half-ripened shoots in sandy soil, under a bell-glass; sandy loam and dried leaf-mould. Winter temp., 45° to 55°; summer, 60° to 80°.

- N. Litchi* (Lee Chee). 15. White. May. China. 1786.
- Longana* (Longan). 20. White. May. China. 1786.
- verticillata* (whorled). 6. White, red. May. E. Ind. 1820.

NEPHRODIIUM. (From *nephros*, a kidney; the shape of the spore-cases. Nat. ord., *Ferns* [Polypodiaceæ]. Linn., 24-*Cryptogamia* 1-*Filices*.) See **FERNS**.

HARDY.

- N. aculeatum* (common-prickly). 2. Brown. June. Britain.
- acrostichoides* (acrostichum-like). 1½. Brown. July. N. Amer.
- angularis* (angular). ¾. Brown. July. Hungary. 1819.
- Baromez* (Baromez). Yellow. Tartary. 1824.
- cristatum* (lesser-crested). 1½. Brown. June. England.
- filix-mas* (male fern). 3. Brown. June. Britain.
- fragrans* (fragrant). ¾. Brown. July. Siberia. 1820.
- Goldianum* (Goldie's). 2. Brown. August. N. Amer.
- intermedium* (intermediate). 2. Brown. June. N. Amer. 1825.
- Lancastrianse* (Lancaster). Yellow. July. N. Amer. 1825.
- lobatum* (lobed). 2. Brown. June. England.
- lonchitis* (lonchitis). ¾. Brown. May. Britain.
- asperimu* (very rough). 1. Brown. July. N. Amer.

- N. marginale* (marginal-spored). 2. Brown. June. N. Amer. 1772.
 — *Novboracense* (New York). 1½. Brown. July. N. Amer. 1812.
 — *obtusum* (blunt-fronded). Yellow. June. N. Amer. 1827.
 — *oreopteris* (oreopteris). 3. Brown. July. Britain.
 — *spinulosum* (crested-prickly). 1. Brown. June. Britain.
 — *thelypteris* (lady fern). 1. Brown. July. Britain.
 GREENHOUSE.
N. coriaceum (leathery). 1. Brown. June. Van Diemen's Land. 1821.
 — *Cunninghamii* (Cunningham's). 1½. Brown. July. New Zealand.
 — *decompositum* (decomposed). ½. Brown. June. N. Holland. 1820.
 — *drepanum* (sickle-like). 2. Brown. July. Madeira. 1837.
 — *elongatum* (elongated). 2. Brown. July. Madeira. 1779.
 — *latevirens* (lively-green). 3. Brown. Madeira.
 — *lucens* (shining). 1. Brown. August. Mauritius. 1831.
 — *rigidum* (stiff). ½. Brown. July. South Europe. 1816.
 — *unitum* (joined). 2. Brown. August. N. Holland. 1793.

STOVE.

- N. abruptum* (abrupt). Yellow. July. Isle of Luzon.
 — *augescens* (increasing). Yellow. June. Cuba. 1841.
 — *auriculatum* (eared). ½. Brown. July. E. Ind. 1793.
 — *Blumei* (Blume's). Yellow. July. E. Ind. 1840.
 — *cane-scens* (hoary). Brown, yellow. May. Isle of Luzon.
 — *caudiculatum* (tailed). Yellow. July. Isle of Luzon.
 — *cordifolium* (heart-leaved). 1. Brown. July. Jamaica. 1824.
 — *crinitum* (haired). 1. Brown. August. Mauritius. 1831.
 — *Cumingii* (Cuming's). 3. Yellow. February. Malacca. 1839.
 — *edule* (eatable-rooted). Yellow. July. Nepal. 1826.
 — *glandulosum* (glanded). Yellow. July. Isle of Luzon. 1840.
 — *hippocrepis* (horse-shoe). 2. Brown. May. Jamaica.
 — *hirsutum* (hairy). Brown, yellow. May. Isle of Luzon. 1842.
 — *molle* (soft). 2. Yellow. July. S. Amer. 1820.
 — *mucronatum* (sharp-pointed). 2. Brown. July. Jamaica. 1820.
 — *parasitium* (parasitical). 1. Brown. June. E. Ind. 1824.
 — *pennigerum* (winged). 6. Yellow. January. W. Ind.
 — *platyphyllum* (flat-leaved). Yellow. June. S. Amer. 1826.
 — *proliferum* (proliferous). 1. Brown. Brazil.
 — *propinquum* (related). 2. Brown. August. E. Ind. 1793.
 — *pubescent* (downy). Brown. July. Jamaica. 1817.
 — *pu'ngens* (stinging). 1. Yellow. January. W. Ind.
 — *serra* (saw-like). 2. Brown. July. Jamaica. 1819.
 — *simplicifolium* (simple-leaved). Yellow. E. Ind. 1840.
 — *terminans* (ending). Yellow, brown. July. E. Ind.
 — *tuberosum* (tuberous). 1½. Yellow. January. W. Ind.

N. villosum (shaggy). 3. Brown. July. W. Ind. 1793.

NEPHROLEPIS. (From *nephros*, a kidney, and *lepis*, a scale; referring to the covering of the seed, or spore-cases. Nat. ord., *Ferns* [Polypodiaceæ]. Linn., 24-Cryptogamia 1-Filices.)

- Stove Ferns, with yellow spores. See FERNS.
N. acuminata (pointed). June. W. Ind.
 — *biserrata* (double-saw-edged). June. Isle of Luzon.
 — *ensifolia* (sword-leaved). June. India.
 — *hirsutula* (small-haired). June. Malacca.
 — *obliterata* (obliterated). June. N. Holland. 1839.
 — *pendula* (drooping). June. W. Ind.
 — *punctulata* (small-dotted). June. W. Ind.
 — *splendens* (shining). June. W. Ind.
 — *trichomanoides* (trichomanes-like). June. Isle of Luzon.
 — *tuberosa* (tuberous-rooted). 2. September. Jamaica. 1841.
 — *vulvibitis* (twining). June. W. Ind.

NEPTUNIA. (After *Neptune*, the mythological deity of the sea; a water-plant. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 23-Polygamia 1-Monœcia. Allied to *Desmanthus*.)

Stove water-plant, with pinnated, sensitive leaves like a *Mimosa*; seeds in strong heat; cuttings and divisions. Winter temp., 50° to 60°; summer, 60° to 90°.

N. ptelea (full). White, yellow. August. Mexico. 1733.

NERINE. (The daughter of *Nerius*. Nat. ord., *Amaryllids* [Amaryllidaceæ]. Linn., 6-Hexandria 1-Monogynia. Allied to *Brunsvigia*.)

Greenhouse bulbs, from the Cape of Good Hope, except when otherwise mentioned. The *Guernsey lily* is a *Nerine*, and, like it, all the species flower in the autumn—some before the growth of the leaves, and others with the leaves coming up. Like the *Amaryllis*, they grow from September to May, and delight in strong, yellow loam; a vigorous growth of the leaves is requisite to cause them to flower the following autumn. Many attempts have been made to cross them with *Amaryllis* and other allied families without success; but they produce fine crosses among themselves. Seeds sown in heat, in spring, or as soon as ripe, but chiefly by offsets from the bulbs; rich, sandy loam, with a little peat; deeply planted, and a dry situation in winter; or protected in a cold pit or greenhouse, and kept dry until vegetation commences.

- N. coru'sca* (glittering). 1. Scarlet. July. 1809.
 — *curvifolia* (curve-leaved). 1. Purple. July. 1777.
 — *flexuosa* (zigzag). 1. Pink. September. 1795.
 — *humilis* (low). 2. Red. June. 1795.
 — *pulchella* (pretty). 2. Pink. July. 1820.
 — *rosea* (rosy). 2. Pink. July. 1818.
 — *Sarnie'nsis* (Guernsey *Lily*). 1. Red. September. Japan. 1059.
 — *undulata* (waved-flowered). 2. Pink. May. China. 1767.
 — *venusta* (beautiful). 1. Scarlet. June. 1806.

NE'RUM. Oleander. (From *neros*, moist; referring to their native places of growth. Nat. ord., *Dogbanes* [Apocynaceæ]. Linn., 5-Pentandria 1-Monogynia.)

Notwithstanding the beauty of the Oleander, it is one of the most virulent of vegetable poisons. Beautiful greenhouse plants, but which require a higher temperature to start them in the spring. Cuttings of shoots, getting firm, in sand, under a bell-glass, and kept warm; cuttings a little older do well in phials of water, also kept warm; peat and loam, enriched with cow-dung and leaf-mould. Winter temp., 35° to 48°; summer, 60° to 75°. The shoots made this season should bloom the next, if well ripened.

- N. odoratum* (sweet-scented). 6. Pale red. July. E. Ind. 1683.
 ——— *carneum* (fleshy). 6. Pink. July. E. Ind. 1683.
 ——— *plenum* (double-flowered). 5. Pale red. July. E. Ind. 1683.
 ——— *oleander* (oleander). 8. Red. August. South Europe. 1596.
 ——— *album* (white-flowered). 8. White. August. South Europe. 1596.
 ——— *splendens* (shining). 7. Red. August. South Europe. 1814.
 ——— *variegatum* (variegated). 8. Striped. August. South Europe.
 ——— *thyrsoïdum* (thyrsoid-flowered). 5. Pink. July. Nepal. 1830.

NESE'A. (The name of a sea-nymph. Nat. ord., *Loosestrifes* [Lythraceæ]. Linn., 11-Dodecandria 1-Monogynia. Allied to Heimia.)

Stove herbaceous perennial. Divisions in spring, as fresh growth commences; cuttings of young shoots in sandy soil, under a bell-glass; sandy loam and fibry peat. Winter temp., 45° to 55°; summer, 60° to 80°.

- N. triflora* (three-flowered). 2. Blue. August. Mauritius. 1802.

NETOU'XIA. (Named after *M. Netoux*, a German author. Nat. ord., *Nightshades* [Solanaceæ]. Linn., 5-Pentandria 1-Monogynia. Allied to *Nicotiana*.)

Hardy herbaceous perennial. Division in spring; cuttings of shoots under a hand-light, in summer; rich, sandy loam.

- N. formosa* (handsome). 4. Yellow. July. Mexico. 1826.

NETTING is employed to prevent the radiation of heat from walls, and the rude access of wind to trees grown upon them, as well as to prevent the ravages of birds.

Netting is a very effectual preventive of cooling, for reasons which will be stated when considering *Screens* generally; and in connexion with that, it may be observed, that it is not altogether immaterial of what substance netting is formed. Worst is to be preferred, not only because it is the most durable, but because it is the best preventive of a wall's cooling. We have found the thermometer under a hemp net sink, during the night, from 2° to 4° lower than that under a net of worsted, the meshes being small and of equal size in both nets. This can only be

because worsted is known to be a worse conductor of heat than hemp; and, not absorbing moisture so easily, is not so liable to the cold always produced by its drying. Netting will also exclude flies and other winged insects from the fruit against walls, although the meshes are more than large enough to permit their passage. Why this is the case is not very apparent; but the netting is equally efficient in keeping similar insects from intruding into rooms if there are no cross lights. If there are windows on different sides of the room, and it is to be presumed, therefore, also in a green or hot-house, nets would not be so efficient.

One hundred square yards of netting, according to some merchants' mode of measuring, will not cover more than fifty square yards of wall, for they stretch the net, first longitudinally, and then laterally, when making their measurement, and not in both directions at once, as the gardener must when covering his trees. Disappointment, therefore, should be avoided, when ordering new nets, by stating the size of the surface which has to be covered. This may be done without any fear of imposition.

Mr. Richardson, net-maker, New Road, London, informs us, that one cwt. of old mackarel-net, weighed when quite dry, will cover eight hundred square yards; and one cwt. of old herring-net (smaller meshes) will cover six hundred square yards. Mr. Hulme, of Knutsford, has sent us various specimens of his nets and open canvass for inspection—some made of woollen and others of hemp: the last does not shrink after being wetted like the woollen. Mr. J. Haythorn, of Nottingham, has also sent us specimens of his excellent hexagonal netting.

NETTLE-TREE. *Celtis*.

NEW JERSEY TEA. *Ceanothus Americana*.

NEW ZEALAND SPINACH (*Tetragonia expansa*) is much admired as a substitute for summer spinach, being of more delicate flavour, and continues available the whole summer.

Sow, at the latter end of March, in the seed-vessel, as gathered in the preceding autumn, in a pot, and placed in a melon-frame. The seedlings to be pricked while small singly into pots, to be kept under a frame without bottom-heat until the third week in May, or until the danger of frost is past. Plant in rows, in a rich, light

soil, at three or four feet apart each way. Twenty plants will afford an abundant supply daily for a large family.

In five or six weeks after planting, the young shoots may be gathered, these being pinched off. They are productive until a late period of the year, as they survive the frosts that kill nasturtiums and potatoes.

To obtain Seed.—A plantation must be made on a poorer soil, or kept stunted and dry in pots, as ice-plants are when seed is required of them.

NICKER-TREE. *Guilandina*.

NICOTIA'NA. Tobacco. (Named after *Nicot*, a French ambassador in Portugal, who first obtained seeds from a Dutch merchant. Nat. ord., *Nightshades* [Solanaceæ]. Linn., 5-Pentandrial-Monogynia.)

Tobacco was first introduced either from Tobago, in the West Indies, or Tobacco, in Mexico—hence the name. Shrubby and perennial kinds require the warm greenhouse in winter, and may be propagated by divisions and cuttings, and also freely by seeds; all the annuals are raised by seed sown in a hotbed, in March or April; seedlings pricked off, potted, and transplanted in rich soil towards the end of May, when the ornamental ones will adorn the flower-border, and the useful ones, such as *tabacum* and *macrophylla*, will yield their large leaves for fumigating purposes; *glauca* makes a fine appearance against a wall.

ANNUALS.

- N. ala'ta* (winged). 2. Pink. September. N. Amer. 1829.
- *angustifo'lia* (narrow-leaved). 4. Pink. August. Chili. 1819.
- *Brasili'e'nsis* (Brazilian). 4. Rose. July. Brazil. 1825.
- *Chine'nsis* (Chinese). 6. Pink. August. China. 1819.
- *dilatata* (spread). 3. Pink. August. 1820.
- *fra'grans* (sweet-scented). 3½. White. Isle of Pines.
- *glutino'sa* (clammy). 4. Scarlet. August. Peru. 1759.
- *longifo'ra* (long-tubed-flowered). 3. White. August. Buenos Ayres. 1832.
- *macrophy'lla* (large-leaved). 6. Pink. July. America.
- *micran'tha* (small-flowered). 1. Green, white. July.
- *multica'lois* (many-valved). 2. White. July. Columbia. 1826.
- *na'na* (dwarf). ½. White. July. N. Amer. 1823.
- *Nepale'nsis* (Nepaul). 4. Rose. July. Nepaul. 1829.
- *noctifo'ra* (night-flowering). 2. Pink. August. Chili. 1826.
- *petiolata* (long-leaf-stalked). 4. Rose. July. S. Amer. 1829.
- *plumbaginifo'lia* (plumbago-leaved). 2. White. May. America. 1816.
- *quadria'lois* (four-valved). 1. White. July. N. Amer. 1811.
- *rotundifo'lia* (round-leaved). 2. White. August. Swan River. 1837.
- *sangu'nea* (crimson). 4. Crimson. July. South Brazil. 1829.

- N. tabacum* (tobacco). 4. Pink. July. America. 1570.
- *at'ypes* (wing-stalked). 4. Pink. July. S. Amer. 1570.
- *attenuata* (thin). 4. Pink. July. S. Amer. 1570.
- *gracil'ypes* (slender-stalked). 4. Pink. July. S. Amer. 1570.
- *lingua* (tongue-leaved). 4. Pink. July. S. Amer. 1750.
- *macrophy'lla* (large-leaved). 7. Pink. July. S. Amer. 1570.
- *pall'e'scens* (pale). 4. Pink. July. S. Amer. 1570.
- *sero'tina* (late). 4. Pink. July. S. Amer. 1570.
- *Ver'dan* (Verdan). 4. Pink. July. S. Amer. 1570.
- *visco'sa* (clammy). 3. Pink. July. Buenos Ayres. 1824.
- *Ybarre'nsis* (Ybarra). 2. Pink. August. S. Amer. 1823.

PERENNIALS.

- N. frutico'sa* (shrubby). 4. Pink. July. China. 1699. Evergreen.
- *glau'ca* (milky-green). 20. Yellow. August. Buenos Ayres. 1827. Evergreen.
- *undulata* (wave-leaved). 2. White. July. N. S. Wales. 1800.
- *vinca'fo'ra* (vinca-flowered). 2. White. August. S. Amer. 1820.

NIEREMBERGIA. (Named after *J. E. Nieremberg*, a Spanish Jesuit. Nat. ord., *Nightshades* [Solanaceæ]. Linn., 5-Pentandria 1-Monogynia. Allied to *Petunia*.)

Pretty half-hardy plants for flower-beds. Cuttings root freely under a hand-light in summer, if kept shaded; and very freely in deep pits, in autumn, without shading, if the glass is from eighteen to twenty-four inches from the cuttings; and most freely in a slight hotbed in spring, from plants commencing to grow after being kept rather cool over the winter. Sandy loam and a little peat, and, when quick growth is wanted, a little cow-dung; kept in a cool greenhouse, or a dry, cold pit in winter, where frost can be excluded; the soil in winter should be poor, and kept rather dry; propagated, also, easily by sowing in a slight hotbed in March and April, potting and turning out the seedlings into the flower-garden in the middle of May.

- N. arista'ta* (awned-leaved). ½. White, purple. July. Panama. 1832. Annual.
- *calyci'na* (large-calyced). ¾. White. July. Uruguay. 1834. Herbaceous.
- *filica'u'tis* (thread-stemmed). 1. Lilac. May. Buenos Ayres. 1832. Herbaceous.
- *gra'cilis* (slender). White, purple. July. Uruguay. 1831. Herbaceous.
- *linaria'fo'lia* (toadflax-leaved). ½. Whitish. July. Uruguay. 1831. Evergreen.

NIGE'LLA. Fennel-Flower. (From *niger*, black; the colour of the seeds. Nat. ord., *Crowfoots* [Ranunculaceæ]. Linn., 13-Polyandria 5-Pentagynia. Allied to *Aquilegia*.)

Hardy annuals. Seeds in the open ground any time after the middle of March.

- N. arista'ta* (awned). 2. Blue. August. Athens.
- *ciliar'is* (hair-fringed). 1. Yellow. July. Levant.
- *cornicu'la'ta* (small-horred). 1. Yellow. July. 1820.

- N. damasce'na* (damask). 1½. Lilac, blue. July. South Europe. 1570.
 — *flo're-ple'no* (double-flowered). 1½. Lilac, blue. July. South Europe. 1570.
 — *Hispa'nica* (Spanish). 1½. Brown, white. July. Spain. 1629.
 — *orienta'lis* (eastern). 1½. Yellow. July. Syria. 1699.
 — *sati'va* (cultivated). 1½. Yellow. July. Egypt. 1548.
 — *citri'na* (citron-coloured-seeded). 1½. Pale blue. July. South Europe.
 — *Cre'tica* (Cretan). 1½. Pale blue. July. Crete.
 — *Indica* (Indian). 1. Pale blue. July. E. Ind.

NIGHTSHADE. *Sola'num*.

NIGHT-SOIL. *See* DUNG.

NIGHT TEMPERATURE in hothouses, greenhouses, and frames should always average from 10° to 20° lower than the temperature in which the plants are grown during the day. It is in the night that the individual functions are renovated by a temporary repose, and if left to the dictates of healthy nature, the sap, like the blood, rises at night with a much diminished velocity. That plants do become exhausted by too unremitting excitement, is proved to every gardener who has peach-houses under his rule; for if the greatest care be not taken to ripen the wood by exposure to the air and light during the summer, no peach-tree will be fruitful if forced during a second successive winter, but will require a much more increased temperature than at first to excite it even to any advance in vegetation.

The experiments of Harting and Munter upon vines growing in the open air, and those of Dr. Lindley upon vines in a hothouse, coincide in testifying that this tree grows most during the less light and cooler hours of the twenty-four; but the hours of total darkness were the period when the vine grew slowest. This, observes Dr. Lindley, seems to show the danger of employing a high night temperature, which forces such plants into growing fast at a time when nature bids them repose.

That the elevation of temperature at night does hurtfully excite plants is proved by the fact, that the branch of a vine, kept at that period of the day in temperature not higher than 50°, inhales from one-sixteenth to one-tenth less oxygen than a similar branch of the same vein, during the same night, in a temperature of 75°. The exhalation of moisture and carbonic acid is also proportionably increased by the higher temperature.

Ni'PA. (The Moluccan name. Nat. ord., *Palms* [Palmaceæ]. Linn., 21-*Monac'ia* 10-*Monadelph'ia*.)

Stove Palm. Seeds in a strong, moist heat, not giving too much moisture to the seed at first; rich loam. Winter temp., 60° to 65°; summer, 60° to 90°, and moist atmosphere.

N. fru'ticans (shrubby). 10. White. E. Ind. 1822.

NIPHE'A. (From *niphos*, snow; snow-white flowers. Nat. ord., *Gesner'worts* [Gesneraceæ]. Linn., 14-*Didyn'amia* 2-*Angiosperm'ia*. Allied to *Achimenes*.)

Stove herbaceous, white-flowered perennials. Divisions of the roots, as growth commences, in the spring; sandy loam and peat, enriched with leaf-mould or rotten cow-dung. Temp. when at rest, 40° to 45°; when starting and potted, 55° to 70°; when growing, 60° to 75°; when flowering, rather less; until after flowering they are allowed to become nearly dry, when a low temperature suits them.

N. al'bo-linea'ta (white-lined-leaved). ¾. September. New Grenada. 1844.

— *oblo'nga* (oblong). ¾. September. Guatemala. 1841.

— *ru'bra* (red-haired). ¾. November. 1846.

NIPHO'BOLUS. (From *niphobolus*, covered with snow; referring to the white covering of the spore-cases. Nat. ord., *Ferns* [Polypodiaceæ]. Linn., 24-*Cryp'togamia* 1-*Filices*.)

Stove Ferns, with brown spores. *See* FERNS.
N. acrosticho'i'des (acrostichum-like). September. Isle of Luzon.

— *adna'scens* (stem-leaf-pressed). ¾. May. E. Ind. 1824.

— *al'bicans* (whitish). 1. July. Ceylon.

— *bi'color* (two-coloured). August. Malacca.

— *co'nfluens* (running-together). ¾. May. N. Holland. 1820.

— *costa'tus* (ribbed-leaved). July. Ceylon. 1824.

— *foccul'o'sus* (woolly-tufted). August. Manila. 1841.

— *glab'er* (smooth). July. Malacca.

— *linea're* (narrow-leaved). ¾. May. Japan. 1822.

— *lin'gua* (tongue-like). ¾. May. Japan. 1817.

— *nummularifo'lius* (moonwort-leaved). May. Isle of Luzon.

— *pertu'sus* (bored). ¾. May. China. 1821.

— *rupe'stris* (rock). ¾. May. N. Holland. 1824.

— *Sine'nsis* (Chinese). ¾. September. China.

— *spl'en'dens* (shining). July. E. Ind.

— *spha'nceph'atus* (round-headed). July. Malacca.

— *va'rius* (variable). July. Malacca. 1845.

NISSO'LLA. (Named after *W. Nissole*, a French botanist. Nat. ord., *Legumi'nous Plants* [Fabaceæ]. Linn., 17-*Dia'delphia* 4-*Decand'ria*. Allied to *Amicia*.)

Cuttings of short, stubby, half-ripened shoots in spring and summer, in sand, under a bell-glass, in bottom-heat; peat and loam. Winter temp., 55° to 60°; summer, 60° to 85°.

STOVE EVERGREEN SHRUBS.

N. glabra'ta (polished). 6. White. 1823.

— *micro'ptera* (small-winged). 10. White. July. Teneriffe. 1820.

— *Robiniaefo'lia* (Robinia-leaved). 6. St. Vincent. 1824.

STOVE EVERGREEN CLIMBERS.

- N. aculeata* (prickly). 12. Rio Janeiro. 1824.
 — *fruticosa* (shrubby). 15. Yellow. August.
 S. Amer. 1766.
 — *racemosa* (racemed). 15. White. July.
 W. Ind. 1800.
 — *retusa* (abrupt-ended-leafted). 6. S. Amer.
 1819.

NITRATES. See SALTS.

NITTA-TREE. *Pa'rkia*.

NIVE'NIA. (Named after J. Niven, a botanical collector. Nat. ord., *Proteads* [*Proteaceae*]. Linn., 4-*Tetrandria* 1-*Monogynia*. Allied to *Protea*.)

Greenhouse evergreen shrubs, from the Cape of Good Hope, bearing, in July, purple flowers. Seeds when obtainable; cuttings of young, stiff, half-ripened shoots in sand, under a bell-glass, in May, and without bottom-heat; sandy peat and fibry loam. Winter temp., 35° to 45°.

- N. lago'pus* (hare's-foot). 4. 1810.
 — *scept'rum* (sceptre-like). 2. 1790.
 — *spathulata* (spathulate-leaved). 2½. 1790.
 — *spicata* (spiked). 2½. 1786.

NOHL-KOHL. See KNOHL-KOHL.

NOISE'TTIA. (Named after L. C. Noi-sette, a French nurseryman. Nat. ord., *Violetworts* [*Violaceae*]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Viola*.)

Stove evergreen. Cuttings of young shoots in April, in sand, under a glass, in heat; rich, sandy loam. Winter temp., 55°; summer, 60° to 85°.

- N. longifo'lia* (long-leaved). 1. Cream. Cayenne. 1824.

NOLA'NA. (From *nola*, a little bell; the form of the flowers. Nat. ord., *Nolanads* [*Nolanaceae*]. Linn., 5-*Pentandria* 1-*Monogynia*.)

Hardy trailing annuals, all blue-flowered but one. Seeds in a gentle hotbed, in spring; seedlings transplanted in May, or sown in May where they are to grow. A border where the soil is rather stiff answers well for sowing all such plants in March, provided you can cover them with a little finer soil, and lay a glass frame over them, until they are fairly up, when they may be protected with a few branches, and then be removed in large patches.

- N. atriplicifo'lia* (atriplex-leaved). ½. White, yellow. July. Peru. 1834.
 — *grandifo'ra* (large-flowered). ½. July. Chili. 1829.
 — *parado'xa* (paradoxical). 1½. August. Chili. 1825.
 — *prostrata* (trailing). ¾. August. Peru. 1761.
 — *tenu'la* (slender). ¾. August. Chili. 1824.

NOLI'NA. (Named after P. C. Nolin, an American botanist. Nat. ord., *Lilyworts* [*Liliaceae*]. Linn., 6-*Hexandria* 3-*Trigynia*. Allied to *Albuca*.)

An interesting, hardy, peat-border bulb. Offsets and cuttings; sandy, moist peat.
N. Georgia'na (Georgian). 2½. White. July. Georgia. 1812.

NONATE'LIA. (From the South American name. Nat. ord., *Cinchonads* [*Cinchonaceae*]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Guettardia*.)

Stove evergreens, with white flowers, except *lu'tea*. Cuttings of firm shoots in summer, in sand, under a bell-glass, and in a moist, sweet bottom-heat; sandy loam and fibry peat. Winter temp., 55° to 65°; summer, 70° to 90°.

- N. lu'tea* (yellow). 1. Yellow. June. Guiana. 1823.
 — *officina'lis* (shop). 4. June. Cayenne. 1827.
 — *racemosa* (racemed). 3. June. Guiana. 1818.
 — *violacea* (violet-berried). 4. June. Guiana. 1824.

NORA'NTEA. (From its Guianan name. Nat. ord., *Margraviads* [*Margraviaceae*]. Linn., 13-*Polyandria* 1-*Monogynia*.)

Handsome stove evergreen shrubs, remarkable for their singular bractes. Culture same as for *Nonatelia*.

- N. Brasili'ensis* (Brazil). 4. Brazil. 1820.
 — *Guian'ensis* (Guiana). 4. Violet. Guiana. 1818.
 — *Indica* (Indian). White. Mauritius. 1822.

NORDMA'NNIA. (In honour of M. Nordmann, a continental botanist. Nat. ord., *Daphnads* [*Thymelaceae*]. Linn., 5-*Pentandria* 1-*Monogynia*.)

Hardy herbaceous plant; by division in early autumn or early spring; light loam.

- N. cordifo'lia* (heart-shaped-leaved). ¾. Blue. April. 1846.

NORMANDY CRESS. See AMERICAN CRESS.

NORWAY SPRUCE. *Pi'nus exce'lsa*.

NOTELE'A. (From *notos*, south, and *elaia*, the olive; literally, the Australian Olive. Nat. ord., *Oliveworts* [*Oleaceae*]. Linn., 2-*Diandria* 1-*Monogynia*.)

All the species in this order will graft on each other, as the Lilac on the Ash, the Olive on the Privet and Phillyrea, and so forth. Greenhouse, white-flowered, evergreen shrubs, from Australia. Cuttings of firm, side, stubby shoots in April, in sand, under a bell-glass, without bottom-heat; peat and loam, with a little sand and charcoal. Winter temp., 40° to 50°.

- N. longifo'lia* (long-leaved). 3. April. 1790.
 — *ovu'la* (egg-leaved). 2. June. 1824.
 — *punctu'la* (dotted-leaved). 3. June. 1826.

NOTHOCLE'NA. (From *nothus*, spurious, and *chlaina*, a cloak; some of the species appearing to have an involucre. Nat. ord., *Ferns* [*Polypodiaceae*]. Linn., 24-*Cryptogamia* 1-*Filices*.)

Stove Ferns, all but one with brown spores. See FERNS.

- N. argyrosti'gma* (silver-dotted). July. E. Ind.
 — *de'nsa* (dense). July. Isle of Luzon. 1840.
 — *di'stans* (distant). ¾. July. N. Holland. 1823.
 — *Ecklonia'na* (Ecklon's). ¾. August. 1838.
 — *lanuginosa* (woolly). ¾. August. Madeira. 1778.
 — *lentig'era* (pea-spored). May. S. Amer. 1822.
 — *Mara'ntha* (Maranta's). ¾. July. N. Holland. 1820.

- *ni'cea* (snowy). ¾. White. July. Mexico.
 — *piloselloi'des* (pilosella-like). ¾. July. E. Ind. 1822.
 — *pu'mila* (dwarf). ¾. August. N. Holland.
 — *ru'fa* (reddish). May. S. Amer. 1841.
 — *sinu'la* (wavy-edged). Peru. 1831.
 — *tenu'ra* (tender-textured). ¾. Mendoza.
 — *tomentosa* (downy). May. Mexico. 1841.

N. trichomanoides (trichomanes-like). June. Jamaica. 1844.

— *vestita* (clothed). July. N. Amer. 1812.

NOTY'LIA. (From *notos*, the back, and *tylos*, a hump; referring to a singular lump on the column. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-*Gynandria* 1-*Monandria*. Allied to *Cirrheæ*.)

Stove orchids. For culture, see *CIRRHEÆ*'A.

N. Barkeri (Barker's). Straw. Mexico. 1837.

— *incurva* (curled-in). Pale straw. Trinidad.

— *laxiflora* (loose-flowered). †. Pale yellow. Para. 1839.

— *micrantha* (small-flowered). Pale green. Demerara.

— *punctata* (dotted). †. Yellow, green. Trinidad. 1822.

— *tenuis* (slender). Pale straw. Demerara. 1836.

NU'PHAR. (From *neufar*, the Arabic for water-lily. Nat. ord., *Water-lilies* [Nymphæaceæ]. Linn., 13-*Polyandria* 1-*Monogynia*.)

A beautiful family of hardy, yellow-flowered water-plants. Seeds merely thrown in the pond where it is desired to grow them, and divisions of the roots.

N. advena (stranger). July. N. Amer. 1772.

— *Kalmiana* (Kalm's). July. Canada. 1807.

— *lutæa* (common-yellow). June. Britain.

— *pumila* (dwarf-yellow). July. Scotland.

— *sagittifolia* (arrow-leaved). July. N. Amer. 1824.

NURSERY, or RESERVE GARDEN, is a garden, or portion of a garden, devoted to the rearing of trees, shrubs, and hardy plants, during their early stages of growth, before they are desired for the fruit- or pleasure-grounds.

NURSERYMAN is one who raises fruit and ornamental trees and plants for sale.

NUTMEG. *Myristica*.

NUTTALLIA. (Named in honour of Professor Nuttall, of Cambridge. It is a true Mallow, and should be united to *Malva*.)

The species are handsome peat-border plants, requiring a slight protection from frost and damp in winter. Seeds in spring; cuttings in summer, of some; division of the fusiform roots in spring, of others; sandy loam and peat.

N. cerasiiformis (bird-cherry-like). 2. Greenish-white. February. California. 1848.

— *cordata* (heart-leaved). Pink. August. N. Amer. 1835.

— *digitata* (finger-leaved). 3. Purple. August. N. Amer. 1824.

— *grandiflora* (large-flowered). 1. Pink. August.

— *malvaeflora* (mallow-flowered). 1½. Purple. August. Texas. 1838.

— *papavereæ* (poppy-flowered). 3. Red, purple. August. Louisiana. 1833.

— *pedata* (doubly-lobed). 3. Purple. August. N. Amer. 1824.

NUT-TREE. *Co'rylus*.

NUYTSIA. Fire-tree. (Called after T. Nuyts, a Dutch navigator. Nat. ord., *Loranthis* [Loranthaceæ]. Linn., 6-*Hexandria* 1-*Monogynia*.)

Very handsome shrubs, from Swan River, with such abundance of bright orange-coloured blossoms, that the colonists at King George's Sound compare it to a tree on fire; and it is also singular as being the only plant in this order of parasites which grows on the ground. Seeds; cuttings of firm side-shoots in May, in sand, under a bell-glass, and placed in a cold frame; sandy peat and fibry loam. Winter temp., 40° to 48°.

N. floribunda (many-flowered). 15. Orange. 1837.

— *ligustri'na* (privet-like). Orange. 1837.

NYCTA'NTHE'S. (From *nyctos*, night, and *anthos*, a flower; the flowers open in the evening. Nat. ord., *Jasmineworts* [Jasminaceæ]. Linn., 2-*Dianthia* 1-*Monogynia*. Allied to *Jasminum*.)

This is the Hursingar of India, whose blossoms perfume the air at night, and cover the ground in the morning, when they are gathered and worn as necklaces, or in the hair of the native women. Stove evergreen shrub. Cuttings of half-ripened shoots in May, in sand, under a bell-glass, and in bottom-heat; sandy loam and fibry peat, kept open by sand and charcoal. Winter temp., 55° to 60°; summer, 70° to 90°. A moist atmosphere when growing.

N. arbor tristis (tree-of-sadness). 15. White. E. Ind. 1781.

NYMPHÆ'A. Water-Lily. (From *nymphæ*, a water-nymph. Nat. ord., *Water-lilies* [Nymphæaceæ]. Linn., 13-*Polyandria* 1-*Monogynia*.)

All most beautiful water-plants; all like a rich, loamy soil, and plenty of water above it. Propagated by seeds, dividing the roots in some, and separating the tuber-like bottoms of others. The stove kinds should be kept cooler and drier in winter, and receive fresh soil before starting them in spring. They much delight in a supply of fresh-heated water when growing, and then the atmosphere can be scarcely too hot and moist. Temp. for stove kinds, winter, 45° to 55°; summer, 70° to 90°.

HARDY.

N. alba (white). White. June. Britain.

— *Canadensis* (Canadian). White. June. Canada. 1820.

— *nitida* (shining-cup-flowered). White. July. Siberia. 1809.

— *odora'ta* (sweet-scented). White. July. N. Amer. 1786.

— *pygma'ea* (pigmy). White. July. China. 1805.

GREENHOUSE.

N. Amazonum (Amazon). Yellow. Jamaica.

— *biradiata* (two-rayed). July. 1846.

— *reni'formis* (kidney-shaped). White. July. Carolina. 1823.

STOVE.

N. am'pla (large-leaved). White. July. Jamaica. 1801.

— *blan'da* (charming). White. July. Trinidad. 1820.

— *cæru'lea* (blue). Blue. July. Egypt. 1792.

— *cyane'a* (Indian-blue). Blue. July. E. Ind. 1809.

— *denta'ta* (toothed-leaved). White. September. Sierra Leone. 1845.

— *Devonien'sis* (Duke of Devonshire's). Scarlet.

— *edu'tis* (eatable). White. July. E. Ind.

- N. elegans* (elegant). Bluish-white. June. New Mexico. 1850.
 — *gigantea* (gigantic). Blue. Australia. 1852.
 — *lotus* (*Egyptian-lotus*). Pink. July. Egypt. 1802.
 — *minor* (smaller). White. July. N. Amer. 1812.
 — *pubescens* (downy. *Indian Lotus*). White. June. E. Ind. 1803.
 — *rubra* (red). Red. July. E. Ind. 1803.
 — *rosea* (rosy). Pink. July. E. Ind. 1803.
 — *scutifolia* (shield-leaved). Blue. August. Cape of Good Hope. 1792.
 — *stellata* (starred-flowered). Blue. July. E. Ind. 1803.
 — *thermaltis* (warm-bath. *Hungarian Lotus*). White. July. Hungary. 1800.
 — *versicolor* (various-coloured). Pink, white. August. Bengal. 1807.

NY'SSA. Tupelo tree. (From *Nyssa*, a water-nymph so called. Nat. ord., *Alangiads* [*Alangiaceæ*]. Linn., 23-*Polygamia* 2-*Diæcia*.)

All the kinds described are referable to three species, *bisflora*, *caudicatus*, and *villosa*. They are deciduous, green-flowered natives of the southern states of North America, where they attain the size of large trees, growing in watery places. They succeed best in peat swamps, and are highly deserving of cultivation, on account of their leaves dying off of an intensely deep scarlet; they are propagated from American seeds, also rather freely by layers; low, damp, moist situations suit them best. We are not aware that any seeds have been produced in England, as the male varieties only have bloomed, so far as we know.

- N. bisflora* (two-flowered. *Mountain*). 6. May. 1739.
 — *caudicans* (whitish. *Ogeechee Lime*). 20. 1806.
 — *grandidentata* (large-toothed). May. 1735.
 — *villosa* (shaggy. *Sour Gum*). 10. May. 1824.

O.

OAK. *Que'rcus*.

OBERO'NIA. Indian and African orchids, only interesting to botanists.

O'CHNA. (From *ochne*, the wild pear-tree; resemblance of the leaves. Nat. ord., *Ochnads* [*Ochnaceæ*]. Linn., 13-*Polyandria* 1-*Monogynia*.)

Stove evergreens, all but one yellow-flowered. Cuttings of half-ripened shoots in summer, under a bell-glass, in sand, and in bottom-heat; sandy peat and fibry loam, with pieces of broken charcoal and crocks to keep the soil open. Winter temp., 48° to 60°; summer, 60° to 85°.

- O. arborescens* (tree). 20. Cape of Good Hope. 1832.
 — *atro-purpurea* (dark purple). 4. Purple. Cape of Good Hope. 1816.
 — *luccida* (bright). 6. E. Ind. 1819.
 — *Mauritiana* (Mauritian). 8. Mauritius. 1822.
 — *multiflora* (many-flowered). 8. Sierra Leone. 1820.
 — *nitida* (shining). 6. Cape of Good Hope. 1815.
 — *obtusata* (blunted). 4. E. Ind. 1790.

OCHRA'NTHE. (From *ochros*, pale yellow, and *anthos*, a flower. Nat. ord., *Cunoniads* [*Cunoniaceæ*]. Linn., 5-*Pentandria* 3-*Trigynia*.)

Greenhouse evergreen. Suckers; cuttings of

ripened shoots under a hand-light, in sandy soil; sandy, fibry loam. A cool greenhouse or a cold pit in winter.

- O. arguta* (sharp). Yellow. March. China. 1820.

OCHRO'MA. (From *ochros*, pale; referring to the flowers. Nat. ord., *Sterculiads* [*Sterculiaceæ*]. Linn., 16-*Monadelphina* 2-*Pentagynia*. Allied to *Cheirostemon*.)

The wood of *O. lago'pus* is so light that it is used in the West Indies for corks. Stove, white-flowered, evergreen trees. Cuttings of stubby, side, half-ripened shoots in sand, under a bell-glass, in heat; rich, sandy loam. Winter temp., 55° to 60°; summer, 60° to 85°.

- O. lago'pus* (hare's-foot). 40. Jamaica. 1804.
 — *tomentosa* (woolly-leaved). 20. S. Amer. 1816.

OCHRO'SIA. (From *ochros*, pale yellow. Nat. ord., *Dogbanes* [*Apocynaceæ*]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Cerbera*.)

Stove evergreen. Cuttings of half-ripened shoots; treatment similar to *Ochroma*.

- O. Borbo'nicia* (Bourbon). 10. Cream. Bourbon. 1828.

O'CYMUM. Basil. (From *ozo*, smell; the powerful odour of the plant. Nat. ord., *Labiates* [*Lamiaceæ*]. Linn., 14-*Didynamia* 1-*Gymnospermia*.)

All but one are white-flowered; and most of them require to be treated as tender and half-hardy annuals. To be sown in a slight hotbed, and transplanted afterwards; the border kinds sown where they are to grow, in warm places and light, rich soil, late in May. See **BA'SIL**.

STOVE EVERGREEN SHRUBS, &c.

- O. Bojeri* (Bojer's). 2. Madagascar. 1825. Herbaceous.
 — *filamentosum* (thready). 2. September. Africa. 1802.
 — *gratissimum* (most agreeable). 2. July. E. Ind. 1751.
 — *mentha'ides* (mint-like). 1. Annual.
 — *montanum* (mountain). 2. May. W. Ind. 1825. Annual.
 — *sanctum* (holy). 1. Purple. E. Ind. 1769. Annual.

HARDY ANNUALS, &c.

- O. basilicum* (common-basil). 1. August. E. Ind. 1548.
 — *glabra'tum* (smooth). July. E. Ind. 1817.
 — *piosum* (soft-haired). 1. July.
 — *thyrsiflorum* (thyrses-flowered). 1½. June. E. Ind. 1806.
 — *bicolor* (two-coloured). 2. October. Abyssinia. 1842. Deciduous shrub.
 — *minimum* (least). 2. July. Chili. 1873.

ODONTOGLO'SSUM. (From *odous*, a tooth, and *glossa*, a tongue; tooth-like processes on the lip, or labellum. Nat. ord., *Orchids* [*Orchidaceæ*]. Linn., 20-*Gynandria* 1-*Monandria*. Allied to *Oncidium*.)

Stove orchids. Division of pseudo-bulbs;

fastened to a block of wood, and then the block fastened across the mouth of a pot, with fibry peat, sphagnum, and potsherds placed round it. Winter temp., 55° to 65°; summer, 65° to 90°.

O. angustatum (narrow-leaved). White, purple. Merida.

— *bi'color* (two-coloured). Violet, yellow. Peru, — *bictone'nse* (Bicton). Lilac, green. April. Guatemala. 1837.

— — *al'bum* (white-tipped). Brown, white. April. Guatemala. 1843.

— — *rubrum* (red-tipped). Brown, red. April. Oaxaca. 1843.

— *brevifo'lium* (short-leaved). Purple. Loxa. — *ca'ndidum* (white). Guatemala. 1840.

— *Cervante'sii* (Cervantes'). $\frac{3}{4}$. White, yellow. June. Oaxaca. 1845.

— *citro'smum* (lemon-scented). 1. White, rose. March. Guatemala. 1840.

— *Clowe'sii* (Clowes's). Yellow, brown. May. Brazil. 1840.

— *caerule'scens* (bluish). White, blue. May. Mexico.

— *constrictum* (constrained). Yellow, brown, green. January. La Guayra. 1841.

— — *ma'jus* (larger). Yellow, brown. May. La Guayra. 1843.

— *corda'tum* (heart-tipped). 1. Greenish-yellow, brown. January. Mexico. 1837.

— *cri'spum* (curled). Yellow, purple. May. Colombia. 1844.

— *cris'a'tum* (crested). Brown-spotted. Peru. — *cuspid'a'tum* (sharp-pointed-leaved). Green, brown. May.

— *densifo'rum* (thickly-flowered). Yellow, red. March. Tanja.

— *Egerlo'ni* (Egerton's). White. April. Guatemala. 1840.

— *Ehrenbe'rgii* (Ehrenberg's). Guatemala. 1842. — *epidendro'ides* (epidendrum-like). Yellow, purple. November. New Grenada.

— *Galeotti'num* (Galeotti's). White. April. Mexico. 1843.

— *Ghiesbreghtia'nium* (Ghiesbreght's). Mexico. — *gra'nde* (magnificent). 1. Cream, brown. March. Mexico. 1849.

— — *labello'al'bum* (white-lipped). 1. Yellow, white. December. Guatemala.

— *Halli'i* (Hall's). Yellow, purple. November. Peru.

— *halba'tum* (halbert-like). Green, red. Mexico. — *halsta'bium* (halbert-lipped). 1. White, yellow, brown. August. Guatemala. 1848.

— *Inslea'yi* (Insley's). Brown, yellow, orange. July. Mexico. 1840.

— *la've* (smooth-tipped). White, yellow, brown. June. Guatemala. 1841.

— *la'cerum* (torn). Yellow, brown. Peru. — *longifo'lium* (long-leaved). Peru.

— *lu'teo-purpu'reum* (yellow-purple). Yellow, purple. February. Quindia.

— *macula'tum* (spotted). 2. Yellow, brown. May. Mexico. 1838.

— *ma'silla're* (jaw-bone). Flesh, red, yellow. September. Mexico. 1846.

— *membrana'ceum* (membrane-sheathed). $\frac{3}{4}$. White, brown. May. Mexico. 1843.

— *mya'nthum* (fly-flowered). Peru. — *nebu'tum* (clouded). Mexico.

— *odora'tum* (sweet-scented). Yellow, red. July. Sierra Nevada.

— *pard'u'm* (panther-like). Yellow, brown. Peru. — *purvifo'rum* (small-flowered). Dark purple, white. August. Mexico.

— *pulche'llum* (pretty). 1. White, yellow. June. Guatemala. 1839.

O. retu'sum (bent-back). Deep yellow. March. Peru.

— *ri'gidum* (stiff). Yellow. Peru.

— *Ro'lliae* (Lady Rolle's). July. Guatemala. 1841. — *ro'seum* (rosy). Rose. Peru.

— *Ro'ssii* (Ross's). Yellow, brown, white. March. Mexico. 1839.

— *stella'tum* (starry-flowered). White, green. April. Mexico. 1839.

— *Warne'ri* (Warner's). $\frac{1}{2}$. Yellow, crimson. April. Mexico. 1844.

— — *purpura'tum* (purplish). $\frac{1}{2}$. Purple, yellow. May. Mexico. 1845.

ODONTOLO'MA. (From *odous*, a tooth, and *loma*, an edge; fronds or leaves tooth-notched. Nat. ord., *Ferns* [Polypodiaceæ]. Linn., 24-Cryptogamia 1-Filices.)

Stove Ferns, with brownish-yellow spores. See FERNS.

O. Bory'anum (Bory's). May. Isle of Luzon.

— *pulche'llum* (neat). May. Isle of Luzon.

— *tenuifo'lium* (slender-leaved). May. E. Ind.

CECEO'CLADES. (From *oikeo*, to inhabit, and *klados*, a branch. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-Gynandria 1-Monandria. Allied to Angræcum.)

Stove orchid. Divisions, by separating a newly-formed shoot; block of wood, or shallow baskets, in sphagnum and fibry turf, and suspended from the roof of a house. Winter temp., 50° to 60°, and dryish atmosphere; summer, 70° to 90°, dry before flowering, moist afterwards.

Æ. falea'ta (sickle-shaped). $\frac{1}{2}$. White. April. China. 1815.

ENOCA'RPUS. (From *oinos*, wine, and *karpos*, a fruit; yields palm-wine and oil. Nat. ord., *Palms* [Palmaceæ]. Linn., 21-Monœcia 6-Hexandria. Allied to Areca.)

Stove Palm. Seeds, but generally suckers; rich, loamy soil. Winter temp., 60°; summer, 60° to 90°.

Æ. Bata'na (Batana). 40. S. Amer. 1820.

ENOTHE'RA. Evening Primrose. (From *oinos*, wine, and *thera*, imbibing; the roots of *bie'nnis* supposed to be an incentive to drinking wine. Nat. ord., *Onagrad* [Onagraceæ]. Linn., 8-Octandria 1-Monogynia.)

Annuals and biennials, by seed in the open border, in April; also in the autumn, to stand over the winter, and bloom early; perennials, by seeds also, by divisions of the plants in spring, and the more rare and tender by cuttings of the young shoots under a hand-light, in early summer. See GOD'E'TIA for some species sometimes included in this genus.

HALF-HARDY.

Æ. acan'tis (stemless). $\frac{1}{2}$. White. July. Chili. 1821. Herbaceous.

— *cheiranthifo'lia* (wallflower-leaved). $1\frac{1}{2}$. Yellow. July. Chili. 1823. Evergreen.

— *Drummo'ndii* (Drummond's). $\frac{1}{2}$. Yellow. August. Texas. 1833. Herbaceous.

— *ro'sea* (rosy). 1. Pink. June. Peru. 1783. Herbaceous.

HARDY HERBACEOUS.

- (E. antio'loha* (unequal - lobed). 2. White. June. Chiloe. 1828.
— cæspitosa (tufted). 1. White. June. N. Amer. 1811.
— Fraseri (Fraser's). 1½. Yellow. June. N. Amer. 1811.
— ——— variegata (variegated-leaved). 1. Yellow. July. Gardens.
— fruticosa (shrubby). 3. Yellow. August. N. Amer. 1797.
— ——— ambigua (doubtful). 1. Yellow. July. N. Amer. 1813.
— ——— Indica (Indian). 1½. Yellow. July. India.
— glauca (milky-green). 2. Yellow. June. N. Amer. 1812.
— ——— variegata (variegated-leaved). 2. Yellow. July.
— gracilis (slender). 1. Yellow. 1893.
— hybrida (hybrid). 1. Yellow. July. N. Amer. 1813.
— macrocarpa (large-fruited). 1. Yellow. June. N. Amer. 1811.
— Missouriensis (Missouri). 1. Yellow. June. N. Amer. 1818.
— nervosa (large-nerved). 2. Yellow. July. 1827.
— Nuttallii (Nuttall's). White. June. N. Amer. 1811.
— pallida (pale). 1½. White, red. June. America. 1826.
— pumila (dwarf). ½. Yellow. July. N. Amer. 1757.
— pusilla (small). ½. Yellow. July. N. Amer. 1817.
— Sellowii (Sellow's). Monte Video. 1831.
— serotina (small-toothed). 1. Yellow. June. N. Amer. 1824.
— serotina (late-flowering). 1½. Yellow. September. N. Amer. 1820.
— speciosa (showy). 1. White. June. N. Amer. 1821.
— ——— major (larger). 6. White. July. N. Amer.
— taraxacifolia (dandelion-leaved). ½. White. June. Peru. 1825.
— tetragona (four-angled-podded). 1½. Yellow. July. N. Amer. 1820.

HARDY BIENNIALS.

- (E. albicans* (whitish). 2. Whitish. June. Peru. 1823.
— albicaulis (white-stalked). ½. White. June. N. Amer. 1811.
— biennis (biennial). 4. Yellow. July. N. Amer. 1629.
— bifrons (two-faced). 1½. Purple. August. Texas. 1835.
— cruciata (cross-flowered). 3. Yellow. July. N. Amer. 1824.
— erosa (jagged). 2. Citron-coloured. July. Cape of Good Hope. 1828.
— globularis (globular). 3. Yellow. July. 1824.
— incana (hoary). 2. Yellow. July. N. Amer. 1820.
— longiflora (long-flowered). 3. Yellow. August. Buenos Ayres. 1776.
— media (intermediate). 2. Yellow. July. N. Amer. 1823.
— nocturna (night-smelling). 2. Yellow. July. Cape of Good Hope. 1790.
— odora (sweet-scented). 2. Yellow. June. S. Amer. 1790.
— pubescens (downy). 1. White. July. S. Amer. 1825.

- (E. salicifolia* (willow-leaved). 2. Yellow. July. 1824.
— Simsia'na (Sims's). 3. Yellow. July. Mexico. 1816.
— striata (streaked). Yellow. July. 1822.
— villosa (shaggy). 2. Yellow. July. Cape of Good Hope. 1791.

HARDY ANNUALS.

- (E. amana* (pleasing). 1. Purple. July. N. Amer. 1825.
— clava'ta (club-leaved). 1. White. July. Mexico. 1827.
— decumbens (lying-down). 1½. Purple. August. California. 1827.
— densiflora (close-flowered). 3. Purple. August. California. 1830.
— Lindleyi (Lindley's). 1½. Purple. August. N. Amer. 1826.
— linearis (narrow-leaved). 1½. Yellow. June. N. Amer. 1822.
— Purshii (Pursh's). White. July. N. Amer. 1811.
— quadrivulnera (four-wounded). 1½. Pink. September. N. Amer. 1826.
— sinuata (scalloped-leaved). 3. Yellow. July. N. Amer. 1770.
— ——— minima (smallest). ½. Yellow. July. N. Amer. 1825.
— stricta (erect). 1½. Yellow. June. 1822.
— tenuifolia (thin-leaved). 1½. Purple. August. Chili. 1828.
— triloba (three-lobed). ½. Yellow. June. N. Amer. 1822.
— viminea (twiggy). 2. Purple. July. California. 1826.
— virgata (rod-shaped). 1½. Purple, white. July. Peru. 1823.

OFFSETS are side bulbs produced by some bulbous roots, and by which the species can be propagated. Whatever checks the upward growth of the parent plant, as an early breaking down of the stem, compels the sap to find other organs for its reception, and, consequently, promotes the production of off-sets. "The practice," says Dr. Lindley, "of scarring the centre of bulbs, the heads of echino-cacti, and such plants, and the crown of the stem of species like *Littlea geminiflora*, in all which cases suckers are the result, is explicable on the foregoing principle."

OGECHEE LIME. *Nyssa candicans*.

OIL NUT. *Hamilt'onia*.

OIL PALM. *Elais*.

O'LAX. (From *olax*, furrowed; flowers partially furrowed, or imbricated. Nat. ord., *Oliveworts* [*Oleaceæ*]. Linn., 3-*Triandria* 1-*Monogynia*.)

Stove, white-flowered, evergreen climbers, from the East Indies. Cuttings of ripened shoots in sand, under a bell-glass, in heat; sandy peat, fibry loam, and a little dried leaf-mould. Winter temp., 50° to 55°; summer, 60° to 80°.

O. imbricata (imbricated). 8. December. 1820.
— scandens (climbing). 8. December. 1820.

OLDENLANDIA. (Named after H. B. Oldenland, a Danish plant-collector. Nat.

ord., *Cinchonads* [Cinchonaceæ]. Linn., 4-Tetrandria 1-Monogynia.) Allied to *Hedyotis*.)

Cuttings of half-ripened shoots of *Deppia'na* in April, in sand, under a glass, in bottom-heat; peat and loam. Winter temp., 50° to 55°; summer, 60° to 85°. The annuals sow in a gentle hotbed, in March; prick out the seedlings in the bed, and move them to the open border, after gradually hardening them, at the end of May.

O. Cape'nsis (Cape). White. July. Cape of Good Hope. 1824. Annual.

— *corymbo'sa* (corymbed). White. June. Jamaica. 1739. Annual.

— *Deppia'na* (Deppe's). 1. White. June. Mexico. 1835. Stove evergreen.

— *umbellata* (umbelled). $\frac{1}{2}$. White. July. E. Ind. 1792.

OLD-MAN'S-BEARD. *Geropo'gon*.

O'LEA. Olive. (From *elaia*, the olive. Nat. ord., *Oliveworts* [Oleaceæ]. Linn., 2-Diandria 1-Monogynia.)

The Olive will graft on the Privet, *Phillyrea*, Ash, Lilac, and others of the order. Evergreens, all white-flowered, except *O. fra'grans*. Cuttings of ripened shoots in spring, in sand, under a hand-light, in a close frame or pit; also, when precursable, by seeds and grafting; loam and peat, of an open, fibry character. Winter temp., 38° to 48°. *O. sati'va* has stood for years against south walls near London. The scent of *fra'grans* is sufficient to perfume a large conservatory; where only one of the genus can be grown, this should be fixed upon.

GREENHOUSE EVERGREENS.

O. America'na (American). 6. June. N. Amer. 1758.

— *arbo'rea* (tree). 20. August. 1825.

— *Cape'nsis* (Cape). 5. July. Cape of Good Hope. 1730.

— *undula'ta* (wave-leaved). 6. July. Cape of Good Hope. 1730.

— *exce'lsa* (tall). 15. May. Madeira. 1784.

— *fra'grans* (fragrant). 4. Yellow. July. China. 1771.

— *olea'ster* (oleaster. *Wild Olive*). 5. July. Portugal. 1821.

— *panicula'ta* (panicked). 10. July. N. Holland. 1825.

— *sati'va* (cultivated). August. South Europe. 1570.

— *buxifo'lia* (box-leaved). 15. July. South Europe.

— *ferrugi'nea* (rusty-leaved). 15. July. Cape of Good Hope.

— *latifo'lia* (broad-leaved). 15. July. South Europe.

— *longifo'lia* (long-leaved). 15. July. South Europe.

— *obli'qua* (twisted-leaved). 15. July. South Europe.

— *verruco'sa* (warted). 6. April. Cape of Good Hope. 1814.

STOVE EVERGREENS.

O. dioi'ca (diaceous). 30. March. E. Ind. 1818.

— *lan'cea* (spear-head-leaved). 20. August. Isle of France. 1819.

— *rob'u'sta* (robust). June. Sylhet. 1824.

— *Roxburghia'na* (Dr. Roxburgh's). 15. August. E. Ind. 1820.

OLEANDER. *Ne'rium*.

OLEA'NDRA. (The genus is founded on *nerifo'rmis*, or oleander-like. Nat.

ord., *Ferns* [Polypodiaceæ]. Linn., 24-Cryptogamia 1-Filices.)

Stove Ferns, with yellow spores. See FERNS.

O. articula'ta (jointed). June. India. 1837.

— *Cumi'ngii* (Cuming's). June. Isle of Luzon.

— *nerifo'rmis* (oleander-like). May. E. Ind.

— *nodo'sa* (knotty). May. S. Amer. 1840.

— *Walli'chii* (Wallich's). May. Nepal.

OLEASTER, or WILD OLIVE. *Elæa'gnus*.

OLFE'RSIA. (Named after *Olfers*, a German botanist. Nat. ord., *Ferns* [Polypodiaceæ]. Linn., 24-Cryptogamia 1-Filices.)

Stove Ferns, with yellowish-brown spores. See FERNS.

O. ap'podum (stemless). June. W. Ind. 1824.

— *Blume'num* (Blume's). April. Isle of Luzon.

— *callea'folium* (calla-leaved). August. Java. 1840.

— *cerui'na* (stag-horned). May. W. Ind. 1840.

— *confo'rme* (conformed). August. Cape of Good Hope. 1841.

— *Corcovade'nsis* (Corcovado). May. Brazil. 1837.

— *longifo'lium* (long-leaved). 1. W. Ind. 1841.

— *obtusifo'lium* (blunt-leaved). June. Isle of Luzon.

— *scolopendri'folium* (scolopendrium-leaved). August. Brazil. 1841.

— *si'mplex* (simple). 1. July. Jamaica. 1793.

— *squamo'sum* (scaly). July. W. Ind.

— *visco'sum* (clammy). August. W. Ind. 1826.

— *villo'sum* (shaggy). 1. July. Jamaica. 1843.

OLIBANUM. *Boswe'llia*.

OLIVE. *O'lea*.

OLIVE-BARK-TREE. *Bu'cida*.

OLIVE-WOOD. *Elæode'ndron*.

OMALA'NTHUS. (From *homalos*, smooth, and *anthos*, a flower. Nat. ord., *Spurge-worts* [Euphorbiaceæ]. Linn., 21-Monæcia 10-Decandria. Allied to *Hippomane*.)

Stove evergreen shrub. Cuttings of firm shoots in sand, in heat; loam and peat. Winter temp., 50° to 60°; summer, 60° to 85°.

O. populifo'lia (poplar-leaved). 6. White. August. N. Holland. 1825.

OMIME PLANT. *Plecta'nthrus*.

OMPHALO'BIMUM. (From *omphalos*, the navel, and *lobos*, a pod. Nat. ord., *Conarads* [Conaraceæ]. Linn., 10-Decandria 1-Monogynia.)

The beautiful zebra-wood of the cabinet-makers is that of *O. Africa'num*. Stove evergreen shrubs, with pale red flowers. Cuttings of half-ripened shoots in sand, under a bell-glass, and in bottom-heat; peat and loam. Winter temp., 55° to 60°; summer, 60° to 85°.

O. Africa'num (African). 8. Guinea. 1822.

— *Indicum* (Indian). 8. Ceylon.

OMPHALO'DES. *Venus's* Navelwort. (From *omphales*, the navel, and *eidos*, like; referring to the seed. Nat. ord., *Boragaworts* [Boraginaceæ]. Linn., 5-Pentandria 1-Monogynia.)

Seeds of annuals in open border, in March, and once or twice more during the summer; the perennials, by division. *O. verna* is a beautiful

plant in the recesses of rock-works, in shady corners, thriving as well in shade as the interesting Periwinkles.

HARDY ANNUALS.

- O. intermedia* (intermediate). Blue. April. Arabia. 1836. Biennial.
- *linifolia* (flax-leaved). 1. White. July. Portugal. 1748.
- *litoralis* (shore). 1. White. July. France. 1826.
- *scorpioides* (scorpion-like). 1. Blue. July. Bohemia. 1825.

HARDY HERBACEOUS.

- O. amplexicaulis* (stem-clasping). 1. White. July. Spain. 1823.
- *mysosotides* (mouse-ear-like). 1½. Brush. September. Russia. 1838.
- *nitidum* (shining). 2. White. May. Portugal. 1812.
- *sempervirens* (evergreen). 2½. Blue. June. Britain.
- *verna* (spring). ½. Blue. March. South Europe. 1633.

ONCIDIUM. (From *ogkos*, a tumour; referring to excrescences on the base of the lip, or labellum. Nat. ord., *Orchids* [*Orchidaceæ*]. Linn., 20-*Gynandria* 1-*Monandria*. Allied to *Odontoglossum*.)

Stove orchids. Divisions as growth is commencing in spring; very shallow baskets suit all the largest-leaved kinds, or they may be fastened to a block of wood, that fastened across the mouth of a pot, the pot filled loosely with pieces of wood and charcoal, to insure perfect drainage, and then rotten wood, sphagnum, and fibry peat laid round the lower part of the plants, provided the base of the leaves is not covered. Hardy kinds, as *flexuosum*, require more packing; small, tender kinds must be carefully treated, to prevent damping, especially when not growing. Winter temp., 58° to 65°; summer, 60° to 90°.

- O. altissimum* (tallest). 4. Yellow, brown. March. Panama. 1793.
- *amictum* (frilled). 1. Yellow, brown-blotched. April. Brazil. 1846.
- *ampliatum* (broad-tipped). 2. Yellow, brown. March. America. 1832.
- — *major* (larger-flowered). ½. Yellow. March. Guatemala. 1840.
- *ascendens* (ascending). Yellow. April. Guatemala. 1837.
- *barbatum* (bearded). 1½. Yellow. April. Brazil. 1818.
- *Barkeri* (Barker's). 1. Yellow. April. Mexico. 1840.
- *Batemanianum* (Bateman's). Yellow. April. Mexico. 1838.
- *Baueri* (Bauer's). Yellow, brown. April.
- *bicallatum* (two-warted). 1. Orange, brown. July. Panama. 1842.
- *bicolor* (two-coloured-flowered). ½. Yellow. September. Mexico. 1841.
- *bicornutum* (two-horned). 1. Yellow-spotted. June. Rio Janeiro. 1830.
- *bifolium* (two-leaved). ¾. Yellow, purple. July. Monte Video. 1811.
- — *pallidum* (pale-yellow). ¾. Pale yellow. July. Monte Video. 1832.
- *brachyphyllum* (short-leaved). Yellow, brown. July. Mexico. 1836.
- *caudidum* (white). White, yellow. March. Mexico. 1843.
- *carinatum* (keeled). Brown, yellow. August. Xalapa. 1838.

- O. Carthaginense* (Carthaginian). 4. Olive. May. Carthage. 1791.
- *Cebolletii* (Cebollet's). 1. Yellow. April. W. Ind. 1825.
- *ciliatum* (fringed-tipped). ½. Yellow, red. January. Brazil. 1818.
- *citrinum* (lemon-coloured). 5. Yellow. August. Trinidad.
- *coloratus* (one-coloured). ¾. Lemon. May. Organ Mountains. 1839.
- *confragosum* (uneven). Straw. July. Mexico. 1835.
- *cornigerum* (horn-bearing). ½. Yellow. July. Brazil. 1829.
- *crispum* (curled-petaled). 3. Orange. June.
- — *luteum* (yellow). Yellow. May. Organ Mountains. 1838.
- *cucullatum* (hooded). Red, purple. February. Quindia.
- *curtatum* (curtailed). Brown, yellow. 1846.
- *deltoidum* (triangular-tipped). 1. Yellow. October. Luna. 1836.
- *Devonianum* (Duke of Devonshire's). 2. Yellow, brown. January. Guatemala. 1836.
- *divaricatum* (spreading). 1½. Yellow, orange, brown. December. Brazil. 1826.
- *cupreum* (copper-coloured). 1½. Yellow, copper. December. Brazil. 1836.
- *excavatum* (hollowed). Yellow. May. Guatemala. 1840.
- *falcipetalum* (sickle-petaled). Brown. August. Merida.
- *fimbriatum* (fringed-flowered). Yellow. Brazil.
- *labelliferum* (fan-bearing). Brown, purple. July. Brazil. 1843.
- *flexuosum* (zigzag). 1½. Yellow, brown. June. Brazil. 1818.
- — *major* (larger-flowered). 1½. Yellow. June. Brazil. 1839.
- *Forbesii* (Forbes's). 1. Scarlet, yellow. September. Organ Mountains. 1837.
- *Forkelii* (Forkel's). Yellow, crimson. June. Mexico. 1844.
- *guttatum* (spotted). Yellow, brown. April. Jamaica. 1838.
- — *fulgens* (brilliant). Jamaica. 1838.
- — *major* (larger). Jamaica. 1839.
- *Harrisonianum* (Harrison's). 1. Yellow-spotted. October. Brazil. 1830.
- *hastatum* (halbert-tipped). Brown, yellow. August. Mexico. 1840.
- *Henchmanni* (Henchman's). Pale rose. May. Mexico. 1839.
- *hians* (gaping-flowered). Brown, yellow. May. Brazil. 1837.
- *Huntianum* (Hunt's). Yellow, red. September. Brazil.
- *incurvum* (curled-back). Bluish-white. July. Mexico. 1839.
- *Insleyi* (Insleay's). Yellow, brown. July. Mexico. 1840.
- *intermedium* (intermediate). 2. Orange. March. Cuba.
- *iridifolium* (iris-leaved). ½. Yellow. June. Mexico. 1835.
- *lacerum* (cut-tipped). 1½. Yellow. April. Panama. 1844.
- *Lanceanum* (Lance's). 1½. Yellow, purple. August. Surinam. 1834.
- — *major* (larger). Green, purple. August. Guiana. 1836.
- *Lemonianum* (Sir C. Lemon's). ¾. Yellow-spotted. March. Havannah. 1856.
- *leucochilum* (white-lipped). 1. Yellow, brown. August. Guatemala. 1835.
- *Lindenii* (Linden's). May. Guatemala. 1840.

- O. linguiforme* (tongue-shaped). Yellow, rose. July. Merida.
- *longifolium* (long-leaved). 3. Yellow, brown. March. Mexico. 1840.
- *lunatum* (crescent-lipped). 1. Orange. June. Demerara. 1836.
- *luridum* (lurid). 2. Olive, brown. March. Jamaica. 1822.
- *guttatum* (speckled). 2. Yellow, red. July. Jamaica. 1837.
- *purpuratum* (purple-stained). 2. Crimson, purple-speckled. September.
- *macrantherum* (large-anthered). ½. Green, purple. March. Mexico. 1840.
- *microchilum* (small-lipped). Yellow, crimson. September. Guatemala. 1838.
- *monoceras* (one-horned). 2. Yellow. January. Rio Janeiro. 1839.
- *nanum* (dwarf). White. La Guayra. 1842.
- *nebulosum* (cloudy). Yellow, brown. Guatemala.
- *nudum* (naked). Yellow, crimson. July. Caraccas. 1834.
- *oblongatum* (oblong-leaved). Yellow. July. Guatemala. 1844.
- *onustum* (loaded). 2. Yellow. October. Peru. 1848.
- *ornithorhynchon* (bird's-bill). 2. Pink, white. July. Mexico. 1826.
- *pa'llidum* (pale-flowered). 2. Pale purple. December. Guatemala. 1835.
- *pachyphyllum* (thick-leaved). 2. Yellow, red. January. Mexico. 1839.
- *papilio* (butterfly-plant). 1½. Yellow, purple. June. Trinidad. 1823.
- *limbatum* (bordered). 1½. Crimson, brown, yellow. October. Trinidad. 1823.
- *pectoralis* (breast-plate). Brown, crimson. April. Brazil. 1842.
- *pelicanum* (pelican-beaked). Yellow. October. Mexico. 1839.
- *pendulum* (drooping-flowered). Brown, yellow. September. Guatemala. 1840.
- *pergameum* (parchment). Yellow. August. Guatemala. 1839.
- *phymatochilum* (long-lipped). 2. White, yellow. April. Brazil. 1844.
- *Pinellianum* (Pinelli's). Brown, red. Brazil. 1841.
- *pubes* (downy). 1. Green, red. April. Brazil. 1824.
- *flavescens* (yellowish). 1. Red, yellow. October. Brazil. 1839.
- *pulchellum* (neat). ½. White-spotted. May. Jamaica.
- *pulvinatum* (cushion-like). 8. Yellow, brown. June. Brazil. 1836.
- *pubulum* (dwarf). ½. Yellow. May. Brazil. 1824.
- *pa'llidum* (pale). ½. Pale yellow. May. Brazil. 1840.
- *raniiferum* (frog-bearing). 1. Yellow. August. Brazil. 1838.
- *ma'jus* (larger-flowered). 1. Yellow. August. Brazil.
- *reserum* (bent-back). Yellow. October. Mexico. 1836.
- *roseum* (rosy). Rose. July. Mexico. 1838.
- *ma'jus* (larger). Rose. March. Honduras. 1839.
- *pa'llidum* (pale). Pale rose. March. Honduras. 1839.
- *Russellianum* (Russell's). 1. Purple, green. Rio Janeiro. 1835.
- *sanguineum* (crimson-blotched). Crimson, red. La Guayra.

- O. spachelatum* (scorched). 2. Yellow, brown. February. Mexico. 1838.
- *grandifolium* (large-flowered). Yellow, brown. February. Mexico. 1840.
- *spilopterum* (spotted-winged). ¾. Brown, yellow. February. Brazil. 1844.
- *stramineum* (straw-coloured). Straw, crimson. Vera Cruz. 1837.
- *sua'ne* (sweet-scented). Yellow. April. Mexico. 1835.
- *Suttoni* (Sutton's). Brown, yellow. August. Mexico. 1842.
- *Taylorii* (Taylor's). 2. Brown. August. Mexico. 1837.
- *te'nue* (slender). ¾. Yellow, brown-spotted. August. Guatemala. 1841.
- *tetrapetalum* (four-petaled). 1. Yellow, brown. Jamaica.
- *tricolor* (three-coloured-flowered). 1½. Yellow, white. April. Jamaica. 1843.
- *triquestrum* (triangular-leaved). ½. White, purple. September. Jamaica. 1793.
- *trulliferum* (trowel-lipped). Brown, yellow. September. Brazil. 1838.
- *unguiculatum* (nail-bearing). 3. Yellow. October. Mexico. 1846.
- *unico'rne* (one-horned). Pale yellow. June. Rio Janeiro.
- *unifolium* (one-flowered). ½. Brown, yellow. November. Organ Mountains. 1841.
- *variegatum* (variegated). 2. Yellow. July. W. Ind. 1824.
- *viperinum* (poisonous). Pale yellow. July. Brazil. 1836.
- *volvibile* (twining). Yellow, brown. December. Brazil.
- *Wentworthianum* (Earl Fitzwilliam's). Yellow, crimson. March. Mexico. 1839.
- *Wrayae* (Mrs. Wray's). 2. Yellow, brown. Guatemala. 1838.

ONE-SHIFT SYSTEM OF POTTING is giving a plant in a pot *one large shift*, instead of frequent small ones. Thus, instead of moving a plant successively from a three to a five-inch pot, thence to a seven or an eight, and thence again to a ten or a twelve, allowing the roots to become matted at the sides of the pot, or merely to reach there, according as *flowering* or *growing* is the object aimed at, the plant is moved at once from a three, four, or five-inch pot into one of eight, twelve, or sixteen inches in diameter. It is seldom that a cutting, or a seedling, or a very small plant, is at *once* moved into a large one, as during its very small state it can be more safely, easily, and economically attended to in a small pot. The one-shift system requires room for its adoption. Striking individual, rather than mere general results are its characteristics; and, therefore, where a constant show of bloom and considerable variety in a small space are chiefly desired, it should only be sparingly adopted. The chief object aimed at is rapidity of growth, and thus obtaining a beautiful specimen in a much shorter period than

could easily be realized by the succession-shift system. By the one-shift system we obtain a vigorous growth; but yet, from being in a pot, luxuriance may be so controlled as not to interfere with the flowering. In fact, with the extra care and trouble involved, we obtain the advantage without the disadvantages of the planting-out system. For the one-shift system, as well as in every other case where a fine specimen is desired, a young plant must be commenced with that has *never* had its roots matted round the pot. Such a plant will soon overtake one four times its size, but which has several times densely filled its pot with roots.

The freely-growing plants, and whose existence is short, are the best to commence with. Many of them are best managed upon this system. Wherever rapidity and strength of growth are an object, annuals intended to flower in pots, after being once pricked off into small pots or preparatory beds, and thus established, can scarcely be too soon afterwards transferred to their blooming pots. Where double flowers, as in the Balsam, or swelling-off part of the flower, as the receptacle in the case of the Cockscomb, are wished for, then different methods may be adopted to secure a desired end. With such hard-wooded plants as Heaths and Epacris the most striking results are obtained by the one-shift system; but as greater care is necessary to success with such plants, we would advise young beginners to try some of the above soft-wooded plants in the first place, and to keep in view, for all the cases they may try, whether the plants are soft-wooded or hard.

In common with other modes of potting, the *pots* should be sound, fairly burned, dry, and either new or thoroughly clean, outside and inside. Secondly, *good drainage*—always essential—must here form a chief element of success. In all plants intended to remain in the same pot for years, it cannot be too particularly attended to. Green moss, or chopped wheat-straw, strewed over the drainage, is a good thing for preventing the earthy particles above being washed into and choking it up. Broken charcoal, from whence the dust has been extracted, is also very useful for this purpose. Indeed, larger pieces of charcoal may constitute the chief part of the drainage, which will be lighter than most things

that could be used—a matter of considerable importance. On this account alone it is valuable for mixing with the compost to keep it open, independently of any chemical properties it may possess. Thirdly, *soil*. This, whatever may be its constituents, should be rough and lumpy; the bulk, in general cases, consisting of pieces from the size of peas up to that of beans and walnuts; and in cases of larger pots, a few pieces may be as large as hens' eggs. In such compost the plants will grow rapidly; and even in the case of Heaths, &c., they will maintain a healthy appearance for years. Should much of the compost be in *larger pieces*, the plant will not at all be greatly injured for the first season, or more, nor yet as long as the roots are contented to crawl around the surface of the lumps; but when they have reached the side of the pot, and necessity leads them to penetrate the large pieces, a declining appearance is apt to present itself. Hence the complaints against the system, that though plants grow vigorously at first, they were short-lived. Such large shifts, in the fine-sifted soil of old, could not succeed, unless in potted specimens that received more care than can, in general, be given to plants. Using huge lumps of loam or peat would tend to produce a similar evil, though from causes apparently different. The middle course is the safe one; but with rough soil, it is necessary to surface with a little that is finer, that the air may not enter too freely. Fourthly. A plant never thrives well when the surface of the ball is sunk several inches below the rim of the pot; and there is something uncouth in observing the centre of the ball sticking up in the centre of the pot, like a mole-hill. In all cases, therefore, but especially where it is intended for a plant to continue for years, the compost should be pressed firmly before the young plant is set in the centre of the pot; and as, nevertheless, it will gradually sink a little, the surface of the old soil may just be a little below the rim of the pot. If the roots are the least matted, they should now be gently disentangled, and packed carefully with the hand in layers, putting the finest of the rough soil over the young rootlets, and the coarser towards the outside, next the side of the pot, and squeezing all rather firmly together with the hand, taking care, however, that

the soil is in that happy medium that may be termed neither dry nor wet, and yet sufficiently *heated* to occasion no immediate check by cold. Fifthly. *Watering* is the most important of all points, and, where it cannot be properly attended to, the one-shift system should not be attempted. For some time you must merely water as far as the roots extend—the unappropriated soil must not be *soaked*, or it will become *sour* and unhealthy for the roots even before they get to it. No regular routine dash or dribble from the water-pot will do with the one-shift system. Sixthly. *Temperature*. On this system, for some time after potting, the plants should have from 5° to 10° more heat than they otherwise would require, and a close atmosphere until fresh growth is proceeding freely. A dash from the syringe frequently, in hot days, will be of great importance. Every incitement to growth must thus be given; and, when that has been accomplished, then air must be freely imparted, and a drier atmosphere maintained, that the fresh wood so freely made may be thoroughly matured. Seventhly. *Time of Potting*. Upon this system, in the case of all lasting plants intended to be our companions for years, this should take place in spring and early summer, in order, first, that growth may be quickly made, and then maturation of the wood be effected before the dark days come, when, in the generality of cases, the low temperature of winter will give them the *rest* they require before breaking and flowering vigorously and profusely the following season.

ONION. *Allium cepa*.

Soil, rich, open, and well drained, in a situation entirely free from trees; if the soil be poor, abundance of dung should be applied in the preceding autumn or winter. Sea-sand, particularly if the ground is at all tenacious, is advantageously employed; coal-ashes, and especially soot, are applied with particular benefit. In digging over the ground, small spits only should be turned over at a time, that the texture may be well broken and pulverized.

Varieties.—1, Silver-skinned Onion, hardest; 2, Early Silver-skinned; 3, True Portugal; 4, Spanish; 5, Strasburg; 6, Deptford (largest in England); 7, Globe (white or red), best; 8, James's Keeping Onion; 9, Pale Red; 10, Yel-

low; 11, Blood-red; 12, Tripoli; 13, Two-bladed; 14, Lisbon.

Sow for the main crop during March. Main crops may even be inserted as late as the beginning of April, and at its close a small sowing to draw young in summer, and for small bulbs to pickle; again in July and early in August, for salads in autumn; and finally in the last week of August, or early in September, to stand the winter, for spring and beginning of summer. Sow thinly in drills, eight inches apart. An ounce of seed is sufficient for a rood of ground, especially for the main crops, as they should never be allowed to grow to a size fit for salads without thinning. The beds should be about four feet wide, for the convenience of cultivation.

Cultivation.—In about six weeks after sowing, the plants will be of sufficient size to allow the first thinning and small hoeing, by which they are to be set out about two inches apart. If this is performed in dry weather it will keep the beds free from weeds for six weeks longer, when they must be hoed a second time, and thinned to four inches apart; and now, where they have failed, the vacancies may be filled up by transplanting there some of those thinned out. The best time for doing this is in the evening, and water must be given for several successive nights. In transplanting, the root only is to be inserted, and no part of the stem buried. No plant is more benefited by liquid manure being given twice a week. After the lapse of another month they must be thoroughly gone over for the last time, and the plants thinned to six inches asunder. After this they require only occasionally the stirring of the surface, which the hoe effects. In order to prevent their running too much to blade, it is a good practice, in July, before the tips change to a yellow hue, to bend the stems down flat upon the bed, which not only prevents it, but causes the bulbs to become much larger than they otherwise would. The bend should be made about two inches up the neck.

Storing.—About the close of August the onions will have arrived at their full growth, which may be known by the withering of the foliage, by the shrinking of the necks, and by the ease with which they may be pulled up. As soon as these symptoms appear, they must be taken up, the bed being frequently looked over;

for if the whole crop is waited for, the forwardest, especially in moist situations or seasons, are apt again to strike root.

Spread on mats in the sun, frequently turn, and remove under shelter at night. In two or three weeks, when the roots and blades are perfectly withered, and the bulbs become firm, they are fit for storing, being housed in dry weather, and carefully preserved from bruising. Previously to doing this, all soil and refuse must be removed from them; for these are apt to induce decay: to prevent this as much as possible, all faulty ones should be rejected. In the store-house they must be laid as thin as may be, or hung up in ropes, and looked over at least once a month. To preserve some from sprouting, for late use, it is useful to sear the roots and the summits with a hot iron, care being taken not to scorch the bulb.

Additional Modes of Cultivation.—For the winter-standing crop the only additional directions necessary are to tread in the seed regularly before raking, if the soil, as it ought to be, is dry and light. They must be kept constantly clear of weeds, as well as of the fallen leaves of trees, but they need not be thinned. Early in spring they are to be transplanted for bulbing. Sow in May. Cultivate the plants as in the other crops; and in October the bulbs, being of the size of nuts, are to be taken up, dried, and housed, as directed for the full-grown bulbs. About the middle of the following March they must be planted out in rows, six inches apart each way, and cultivated the same as the other crops. If sown earlier than May they run to seed when transplanted. Another mode, nearly as efficacious, is to sow in the latter part of August, to stand the winter, and in March, early or late, according to the forward growth of the seedlings, to be planted out in rows at the before-directed distance, and cultivated as usual.

In Portugal they sow in a moderate hotbed during November or December, in a warm situation, with a few inches of mould upon it; and the plants are protected from frost by hoops and mats. In April or May, when of the size of a swan's quill, they are transplanted into a light, rich loam, well manured with old-rotten dung, to bulb. Transplanting alone is of great benefit.

To save Seed, some old onions must be planted early in March, the finest and

firmest bulbs being selected, and planted in rows ten inches apart each way, either in drills or by a blunt-ended dibble, the soil to be rather poorer, if it differs at all from that in which they are cultivated for bulbing. They must be buried so deep that the mould just covers the crown. If grown in large quantities, a path must be left two feet wide between every three or four rows, to allow the necessary cultivation. They must be kept thoroughly clear from weeds, and, when in flower, have stakes driven at intervals of five or six feet on each side of every two rows, to which a string is to be fastened throughout the whole length, a few inches below the heads, to serve as a support, and prevent their being broken down. The seeds are ripe in August, which is intimated by the husks becoming brownish; the heads must then be immediately cut, otherwise the receptacles will open and shed their contents. Being spread on cloths in the sun, they soon become perfectly dry, when the seed may be rubbed out, cleaned of the chaff, and, after remaining another day or two, finally stored. It is of the utmost consequence to employ seed of not more than one year old, otherwise scarcely one in fifty will vegetate. The goodness of seed may be easily discovered by forcing a little of it in a hotbed or warm water a day before it is employed; a small white point will soon protrude if it is fertile.

ONION-FLY. See ANTHOMYIA and EUMERUS.

ONISCUS. *O. asellus*, *O. armadillo*. Woodlice. The first is most easily distinguished from the second by its not rolling up in a globular form when at rest. They are found in old, dry dunghills, cucumber-frames, &c., and they are injurious to many plants, fruits, &c., by gnawing off the outer skin. Gas-lime will expel them from their haunts, and two boards or tiles kept one-eighth of an inch apart form an excellent trap.

ONOBRO'MA. (From *onos*, the ass, and *broma*, food. Nat. ord., *Compositæ* [Asteraceæ]. Linn., 19-Syngenesia 1-Æqualis. Allied to *Carthamus*.)

Cuttings, and divisions, and seeds of perennials; annuals, by seed; common soil; *arbore'scens* requires the protection of a cool greenhouse in winter.

O. arbore'scens (tree-like). 6. Yellow. July. Spain. 1731. Evergreen.
—*cæruleum* (blue). 1. Blue. June. Spain. 1640. Herbaceous.

- O. cynaroides* (cynara-like). 2. White. June. Caucasus. 1820. Herbaceous.
— *glaucum* (milky-green). 1½. Purple. July. Tauria. 1817. Annual.
— *leucocaulon* (white-stemmed). 1. White. June. Greece. 1800. Herbaceous.

ONOBRYCHIS. Saintfoin. (From *onos*, the ass, and *brycho*, to gnaw; favourite food of the ass. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 17-*Diadelphia* 4-*Decandria*. Allied to *Hedysarum*.)

Best by seeds in spring, where they are to remain and bloom, as all move badly. Sandy, deep loam.

HARDY ANNUAL.

- O. ca'put-ga'lli* (cock's-head). 1½. Flesh. July. France. 1731.

HARDY HERBACEOUS.

- O. arena'ria* (sand). 1. Red. July. Siberia. 1818.
— *Carpa'tica* (Carpathian). 1. Purple. July. Carpathia. 1818.
— *confe'rta* (crowded). 1. Purple. July. Iberia. 1817.
— *cornu'ta* (horned). 1. Red. July. Caucasus. 1816. Evergreen.
— *crini'ta* (haired). Lilac. June. Levant. 1837.
— *echina'ta* (hedgehog). Flesh. June. Calabria. 1831.
— *Fontane'sii* (Fontaine's). Red. July. Tunis. 1820.
— *glabra* (smooth). 1. Purple. July. Tauria. 1816.
— *gracili's* (slender). 1. Pale red. July. Podolia. 1820.
— *Michauxii* (Michaux's). Pale red. July. Levant. 1820.
— *monta'na* (mountain). ½. Purple. July. South Europe. 1817.
— *Pallasii* (Pallas's). 1. Pale yellow. Iberia. 1820.
— *petra'a* (rock). 1. White, red. Caucasus. 1818.
— *procumbens* (lying-down). ½. Purple. July. Iberia. 1819.
— *Ptolema'ica* (Ptolemais). 1. Yellow. Egypt. 1816.
— *radia'ta* (rayed). 1½. Pale yellow. Iberia. 1818.
— *saxatilis* (rock). 1. Lilac, yellow. South Europe. 1790.
— *supi'na* (supine). ½. Pale red. Switzerland. 1819.
— *Tanaitica* (Tanaïs). 1. Purple. July. Caucasus. 1817.

ONOCLEA. (*Onoclea* was the Greek name of a plant. Nat. ord., *Ferns* [Polypodiaceæ]. Linn., 24-*Cryptogamia* 1-*Filices*.)

Hardy Ferns. See FERNS.

- O. obtusiloba'ta* (blunt-lobed). 1. Brown. July. N. Amer. 1812.
— *sensibilis* (sensitive). 1½. Brown. August. Virginia. 1799.

ONONIS. Restharrow. (From *onos*, an ass, and *onemi*, to delight; the ass delights to browse on the herbage. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 16-*Monadelphia* 6-*Decandria*. Allied to *Anthyllis*.)

Annuals, by seeds in April, in sandy, deep soil; perennials and creeping shrubs, by division in spring, and cuttings under a hand-light, in sand,

in summer; deep, sandy loam for most of them. Hardy under-shrub kinds, if of a creeping nature, answer well for rock-works. The tenderer species require a cold pit or a cool greenhouse in winter, and most of these like a little peat added to the sandy loam.

HARDY PERENNIALS.

- O. arbore'scens* (tree-like). 2. Red. June. Barbary. 1826.
— *arena'ria* (sand). ½. Yellow. July. France. 1819.
— *Arragone'nsis* (Arragonese). 1½. Yellow. July. Spain. 1816.
— *capita'ta* (round-headed). ½. Yellow. August. Spain. 1820.
— *frutico'sa* (shrubby). 2. Pink. May. South Europe. 1830.
— — *microphy'lla* (small-leafted). 4. Purple, red. June. Arragon.
— *procu'rrens* (procurent). 1. Purple. July. Europe. 1820.
— *rotundi'folia* (round-leaved). 2. Pink. May. Pyrenees. 1570.
— — *arista'ta* (bearded). 2. Pink. June.
— *tribractea'ta* (three-bracted). 1½. Pink. June. South Europe. 1800.
— *tridenta'ta* (three-toothed). 1½. Purple. June. Spain. 1752.

TENDER PERENNIALS.

- O. angustis'sima* (narrowest-leaved). ½. Pink. June. Spain. 1825.
— *cuspidat'a* (pointed-leaved). 1½. Yellow. June. Algiers. 1818.
— *emargina'ta* (notched-leaved). Mauritius. 1825.
— *falca'ta* (sickle-podded). 1½. Yellow. July. South Europe.
— *glabra* (smooth). ½. Yellow. July. Cape of Good Hope. 1824.
— *Hispa'nica* (Spanish). 1½. Yellow. July. Spain. 1799.
— *hispida* (bristly). 1½. July. Barbary. 1818.
— *longifo'lia* (long-leaved). 2. Yellow. July. Teneriffe. 1816.
— *peduncula'ris* (long-flower-stalked). 1. White, rose. April. Teneriffe. 1829.
— *pi'cta* (painted). 1. Purple, yellow. Barbary. 1820.
— *ramosi'ssima* (branchiest). ½. Yellow. July. Sicily. 1819.

ANNUALS.

- O. al'ba* (white). 1. White. July. Barbary. 1823.
— *A'pula* (Apulian). 1. Yellow. September. Naples. 1834. Biennial.
— *bifo'ra* (two-flowered). ½. Yellow, purple. July. Barbary. 1818.
— *brachyca'rpa* (short-podded). ½. Yellow. June. Spain. 1823.
— *brevifo'ra* (short-flowered). ½. Yellow. August. South Europe. 1800.
— *Cape'nsis* (Cape). ½. Purple. Cape of Good Hope. 1800.
— *Denhardti's* (Denhardt's). 1. Yellow. August. Naples. 1832. Biennial.
— *diffu'sa* (spreading). ½. Purple. July. Italy. 1820.
— *fo'etida* (fetid). ½. Pink. June. Morocco. 1818.
— *geminifo'ra* (twin-flowered). ½. Purple. July. Spain. 1817.
— *minuti'ssima* (smallest). ½. Yellow. June. France. 1818. Biennial.
— *oligophy'lla* (few-leaved). 1½. White. July. Naples. 1823.
— *pendula* (drooping). 1½. Purple. July. South Europe. 1818.

ONOPORDON. Cotton Thistle. (From *onos*, an ass, and *perdo*, to consume;

eaten by the animal. Nat. ord., *Compositæ* [Asteraceæ]. Linn., 19-Syngenesia 1-*Æqualis*. Allied to the Thistle.)

Hardy biennials, the seeds of which merely require sowing in the commonest soil, either in the autumn or early spring.

- O. acaulon* (stemless). ½. White. July. Pyrenees. 1739.
- *Arabicum* (Arabian). 8. Purple. July. South Europe. 1686.
- *cynaroides* (artichoke-like). 10. White. June. Caucasus. 1823.
- *elatum* (tall). 7. Purple. July. Greece. 1816.
- *Illyricum* (Illyrian). 6. Purple. July. South Europe. 1640.
- *maeracanthum* (long-spined). 6. Purple. July. Barbary. 1798. Annual.
- *Pyrenæicum* (Pyrenean). ½. White. August. Pyrenees. 1820.
- *uniflorum* (one-flowered). ½. White. July. Spain. 1826.
- *viscosum* (clammy). 7. Purple. July. South Europe. 1818.

ONOSMA. (From *ones*, an ass, and *osme*, smell; said to be grateful to the animal. Nat. ord., *Borageworts* [Boraginaceæ]. Linn., 5-Pentandria 1-Monogynia. Allied to Echium.)

Herbaceous perennials, yellow-flowered, except where otherwise mentioned. Small, pretty plants for mounds, rock-work, and old walls, where, if once established, they will maintain themselves by seeds; seeds and divisions; sandy loam and sandy peat, and thin layers of decomposed vegetable matter; a few tender kinds require a cold frame, and *trineurium* a warm greenhouse in the winter.

HALF-HARDY.

- O. rigidum* (stiff). 1. July. Tauria. 1826.
- *rostratum* (rock). ½. May. Iberia. 1819.
- *trineurium* (three-nerved). 1. S. Amer. 1824.

HARDY.

- O. divaricatum* (spreading). 1. May. Caucasus. 1818.
- *echinoides* (echium-like). 1. White. May. South Europe. 1693.
- *arenarium* (sand). 1. June. Hungary. 1804.
- *gigantum* (giant). 3. April. Tauria. 1818.
- *Gmelinii* (Gmelin's). 1. Striped. June. Altai. 1829.
- *montanum* (mountain). March. Levant. 1827.
- *orientale* (eastern). ½. May. Levant. 1752.
- *polyphyllum* (many-leaved). 1. July. Tauria. 1829.
- *sericeum* (silky-leaved). ½. June. Iberia. 1752.
- *simplicissimum* (simplest). 1. April. Siberia. 1768.
- *stellulatum* (small-starred). ½. April. Hungary. 1819.

ONOSMODIUM. (From *onosma*, the last genus, and *eidos*, like. Nat. ord., *Borageworts* [Boraginaceæ]. Linn., 5-Pentandria 1-Monogynia. Allied to Echium.)

Hardy herbaceous North American perennials, flowering in June; thriving in sandy loam, and propagated by seeds and division.

- O. hispidum* (bristly). 1. Yellow. 1759.
- *molle* (soft). ½. White. 1812.

ONYCHIUM. (From *onyx*, a claw; shape of the lobes of the fronds. Nat. ord., *Ferns* [Polypodiaceæ]. Linn., 24-Cryptogamia 1-*Filices*.)

Stove Ferns, with yellowish-brown spores. See FERNS.

- O. auratum* (golden). July. N. S. Wales.
- *Capeense* (Cape). July. Cape of Good Hope.
- *lucidum* (shining). July. Nepaul. 1844.

OPERA GIRLS. *Mantisia*.

OPERCULARIA. (From *operculum*, a lid; shape of calyx. Nat. ord., *Cinchonads* [Cinchonaceæ]. Linn., 5-Pentandria 1-Monogynia. Allied to Pomax.)

Greenhouse herbaceous, white-flowered perennials. Seeds in spring, in a mild hotbed; division of some of the plants as growth commences; cuttings of the young shoots, best when several inches long; sandy loam and a little fibry peat, and dried pieces of leaf-mould, and a few pieces of charcoal; a dry, cold pit or greenhouse in winter.

- O. aspera* (rough-seeded). 1. June. N. Holland. 1790.
- *hispida* (bristly). 1. July. N. Holland. 1790.
- *ocymifolia* (basil-leaved). ½. July. E. Ind. 1824.
- *sessiliflora* (stalkless-flowered). ½. June. Cape of Good Hope. 1824.

OPHELIA. (From *opheleia*, serviceable; medicinal. Nat. ord., *Gentianworts* [Gentianaceæ]. Linn., 5-Pentandria 2-Digynia. Allied to the Gentian.)

A pretty little annual, with starry pink flowers. Seeds sown under a glass frame in the beginning of April, and planted out in the open border at the beginning of May.

- O. purpurascens* (purplish). ½. May. E. Ind. 1836.

OPHIOPOGON. (From *ophis*, a serpent, and *pogon*, a beard. Nat. ord., *Lilyworts* [Liliaceæ]. Linn., 6-Hexandria 1-Monogynia. Allied to Convallaria.)

Herbaceous, white-flowered perennials, except where otherwise mentioned. Division of the plant at the roots, in spring, as vegetation is commencing; also by seed; sandy loam and a little peat; requires the protection of a cold pit, or a very dry, sheltered place in winter.

- O. intermedium* (intermediate). August. Nepaul. 1824.
- *Jaburan* (Jaburan). 1. July. Japan. 1830.
- *Japonicus* (Japan). 1½. Lilac, yellow. June. Japan. 1784.
- *prolifer* (proliferous). 1½. July. Penang. 1844.
- *spicatum* (spiked). 1. Violet. October. Nepaul. 1821.

OPHIOXYLON. (From *ophis*, a serpent, and *xylon*, wood; referring to its twisted roots. Nat. ord., *Dogbanes* [Apocynaceæ]. Linn., 23-Polygamia 2-Diœcia. Allied to Carissa.)

Stove evergreen. Division of the creeping stems; rich, sandy loam. Winter temp., 50° to 55°; summer, 60° to 80°.

- O. serpentinum* (serpentine). 3. White. May. E. Ind. 1690.

O'PHRYS. (From *ophrys*, eyebrows; referring to the fringe of the inner sepals. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-*Gynandria* 1-*Monandria*.)

Elegant little ground-orchids, chiefly natives of England, but difficult to keep alive under cultivation. Division of the tuberous-like roots; also, most of the hardy ones by seed, which should be sown as soon as ripe, or permitted to sow itself by falling on loose, damp moss, whence it may be moved, and finally planted after growth has taken place. *Api'fera* prefers rich, heavy soil; most of the others, sandy, chalky loam, and a little peat. Considering their interesting appearance, they well deserve a frame or cold pit from amateurs, so that they might receive similar attention to small alpinists.

HALF-HARDY.

- O. arani'fera-limba'ta* (bordered-spider-bearing). 1. Brown. April. Rome. 1826.
- *atra'ta* (dark). 2. Green, brown. May. Gibraltar. 1825.
- *fe'rreum-equi'nium* (horse-shoe). 3. Brown, rose. April. Corfu.
- *fuci'sto'ra* (drone-flowered). 2. Green, brown, pink. Zante.
- *fu'sca* (brown). 3. Brown. June. Gibraltar. 1825.
- *lu'tea* (yellow). 3. Yellow. April. Spain. 1818.
- *sc'o'lopax* (woodcock). 2. Purple. May. Italy. 1825.
- *tenthredi'ni'fera* (saw-fly-bearing). 2. Yellow, brown. April. Barbary. 1815.
- — (smaller). 2. Yellow, brown. April. N. Africa. 1824.

HARDY.

- O. api'fera* (bee-bearing). 2. Purple. June. England.
- *arachni'tes* (cobweb). 2. Brown. June. England.
- *arachno'i'dea* (spider-like). Brown, rose. April. Italy. 1805.
- *arani'fera* (spider-bearing). 2. Green. May. England.
- *ci'tiata* (hair-fringed). Brown, white. April. Italy. 1826.
- *cornu'ta* (horned). 2. White, purple. June. Crimea. 1844.
- *exalta'ta* (lofty). Rose, brown. April. Italy. 1825.
- *fuci'fera* (drone-bearing). 2. Purple, green. June. England.
- *grandi'sto'ra* (large-flowered). Red, yellow. April. Italy. 1828.
- *musci'fera* (fly-bearing). 2. Purple. May. England.
- *spe'culum* (looking-glass). Brown, black. April. South Europe. 1818.
- *tabani'fera* (dun-fly-bearing). 2. Chocolate, rose. April. Clarentia.

OPORA'NTHUS. (From *opora*, autumn and *anthos*, a flower. Nat. ord., *Amaryl-lids* [Amaryllidaceæ]. Linn., 6-*Hexan-dria* 1-*Monogynia*. Allied to *Sternbergia*.)

A hardy, free-flowering bulb, very useful for mixed borders, flowering close to the ground in the autumn. For culture, see *AMARYLLIS*.

O. lu'teus (yellow), and *lu'teus angustifo'lia* (narrow-leaved). 2. Yellow. September. South Europe. 1896.

OPUNTIA. Indian Fig. (A Latin name, of which the derivation is not applicable to the species now placed under it. Nat. ord., *Indian Figs* [Cactaceæ]. Linn., 12-*Icosandria* 1-*Monogynia*.)

Greenhouse evergreen succulents, with yellow flowers, when not otherwise mentioned. Cuttings, by taking pieces off at the joints, and drying them a little before inserting them in sandy loam, and giving them a brisk bottom-heat. The great point is to give them a high temperature and a moist atmosphere when growing in summer, say from 65° to 85° or 90°; to reduce the moisture gradually as autumn approaches, but not the temperature, until autumn is on the wane; and then to keep them in a low temperature (40° or 50°), and dry during the winter; sandy loam, fibry peat, each one part; lime-rubbish, cow-dung, and charcoal, one-third part each. *Vulga'ris* has stood in dry situations out of doors near London, and has been unhurt when planted at the foot of a wall, and wet excluded during winter. All species of which we know nothing but the names have been omitted.

- O. al'bicans* (whitish-spined). Mexico. 1895.
- *al'pi'na* (alpine). Chili. 1896.
- *America'na* (American). S. Amer. 1835.
- *Amyle'a* (Amylean). Naples. 1825.
- *articula'ta* (jointed). June. 1836.
- *auranti'flora* (orange-flowered). 3. Orange, yellow. Chili. 1824.
- *Bonplandi* (Bonpland's). July. Brazil. 1816.
- *Brasili'e'nsis* (Brazilian). 25. July. Brazil. 1816.
- *cochinili'fera* (cochineal-bearing). 5. Red. August. S. Amer. 1688.
- *corruga'ta* (wrinkled). Chili. 1824.
- *cras'sa* (thick-lobed). 2. Mexico. 1817.
- *Curassavica* (Curasson). 6. June. Curassoa. 1690.
- — *elonga'ta* (elongated). 3.
- — *longa* (long). 6. June. Curasson. 1690.
- *cylindrica* (cylindrical). 3. Scarlet. Peru. 1799.
- *dece'piens* (deceiving). Scarlet. June. Mexico. 1830.
- *decuma'na* (great-oblong). 10. S. Amer. 1768.
- *decu'mbens* (lying-down). 2. June. Mexico. 1835.
- *deje'cta* (dejected). Havannah. 1836.
- *dicho'toma* (two-rowed). Buenos Ayres. 1836.
- *Dillenii* (Dillenius's). 5. September. 1810.
- *elati'or* (taller-black-spined). 6. July. S. Amer. 1731.
- *exte'nsa* (outspread). Lilac, yellow. 1824.
- *exuvia'ta* (cast-forth). June. Mexico. 1830.
- *fe'rox* (fierce). 3. S. Amer. 1817.
- *fil'eus Indiae* (Indian fig). 2. June. S. Amer. 1731.
- *fotio'sa* (leafy). S. Amer. 1805.
- *fra'gilis* (brittle). 2. N. Amer. 1814.
- *glomerata* (round-headed). Brazil. 1829.
- *Hernandezii* (Hernandez's). Variegated. Mexico. 1827.
- *ho'rrida* (horrid). July. S. Amer. 1795.
- *imbrica'ta* (imbricated). 3. 1820.
- *inermis* (unarmed). July. S. Amer. 1796.
- *lanecola'ta* (spear-head-shaped). 2. July. S. Amer. 1796.
- *leucacantha* (white-flowered). White. S. Amer. 1825.
- *leuco'tricha* (white-haired). 4. White. Germany. 1836.
- *longispina* (long-spined). Brazil. 1829.
- *maxima* (largest). 10. S. Amer. 1820.
- *media* (middle-many-spined). N. Amer. 1827.
- *megacantha* (large-spined). Mexico. 1835.
- *Mexicana* (Mexican). Mexico. 1835.
- *Missouriensis* (Missouri). June. N. Amer. 1814.
- *monacantha* (single-spined). 1. S. Amer. 1816.
- *myriacantha* (myriad-spined). Mexico. 1830.
- *nigricans* (blackish-spined). 3. Pink. August. S. Amer. 1795.
- *nopal'lo* (small nopal). Mexico. 1838.
- *Otto'nis* (Otto's). June. Brazil. 1830.

- O. pa'rula* (least). Chili. 1825.
 — *platyacantha* (broad-spined). 1814.
 — *polyantha* (many-flowered). 3. S. Amer. 1811.
 — *polyantha* (many-spined). 1. N. Amer. 1814.
 — *pseudotu'na* (false-tuna). 1811.
 — *pubescens* (downy). June. Mexico. 1836.
 — *pulvinata* (powdered). June. Mexico. 1836.
 — *pusilla* (small). 4. S. Amer. 1805.
 — *ramulifera* (branched). June. Mexico. 1836.
 — *rep'tans* (creeping). Mexico. 1838.
 — *rosea* (rosy). Rose. June. Mexico. 1830.
 — *rubescens* (red-stemmed). Brazil. 1828.
 — *senilis* (old-man). 1837.
 — *sericea* (silky). 1. Chili. 1827.
 — *spinosa* (golden-spined). Mexico. 1838.
 — *spinosissima* (spiniest). 20. July. Jamaica. 1732.
 — *spinulifera* (small-spine-bearing). Mexico. 1836.
 — *Stapelia* (Stapelia-like). June. Mexico. 1830.
 — *subinermis* (few-spined). 2. 1819.
 — *sulphurea* (sulphur-coloured). 2. Chili. 1827.
 — *tomentosa* (shaggy). 2. S. Amer. 1820.
 — *triacantha* (three-spined). 2. S. Amer.
 — *tuberculata* (warted). 1. America. 1818.
 — *tu'na* (tuna). 3. July. S. Amer. 1731.
 — *vulgaris* (common). 2. July. South Europe. 1596.

ORACH. (*Atriplex hortensis*.) This is cooked and eaten in the same manner as spinach, to which it is much preferred by many persons, although it belongs to a tribe whose wholesomeness is very suspicious.

Soil.—It flourishes best in a rich, moist soil, and in an open compartment.

Sow about the end of September, and again in the spring for succession, in drills six inches apart. When the seedlings are about an inch high, thin to six inches asunder, and those removed may be planted out at the same distance in a similar situation, and watered occasionally until established. For early production sow in a moderate hotbed at the same time as those in the natural ground. The leaves must be gathered for use whilst young, otherwise they become stringy and worthless.

To save Seed.—Some plants of the spring sowing must be left ungathered from, and thinned to about eight inches apart. The seeds ripen about the end of August, when the plants must be pulled up, and, when perfectly dry, the seed rubbed out for use.

ORANGE. (*Citrus aurantium*). See **CITRUS**.

ORANGE THORN. *Citriobatus*.

ORCHARD is an enclosure devoted to the cultivation of hardy fruit-trees. With respect to the situation and aspect for an orchard, avoid very low, damp situations as much as the nature of the place will admit; for in very wet soils no fruit-trees will prosper, nor the fruit be fine; but a

moderately low situation, free from copious wet, may be more eligible than an elevated ground, as being less exposed to tempestuous winds; though a situation having a small declivity is very desirable, especially if its aspect incline towards the east, south-east, or south, which are rather more eligible than a westerly aspect; but a north aspect is the worst of all for an orchard, unless particularly compensated by the peculiar temperament or good quality of the soil. Any common field or pasture that produces good crops of corn, grass, or kitchen-garden vegetables is suitable for an orchard; if it should prove of a loamy nature, it will be a particular advantage. Any soil, however, of a good quality, not too light and dry, nor too heavy, stubborn, or wet, but of a medium nature, friable and open, with not less than one spade deep of good staple, will be proper.

Drain thoroughly, and trench before planting. Plant in October, or, at the latest, in November. Trees will succeed if planted later; but those are the best months. Plant on stations (*See STATIONS*); and the following is a good selection:—Of *Apples*, plant for *Kitchen* use Keswick Codling, Mank's Codling, Blenheim Pippin, Dumelow's Seedling, Minshall Crab, Bedfordshire Foundling, Norfolk Beaufin, Hawthornden, Herefordshire Pearmain, King of Pippins, and John Apple. For *Dessert*: Early Harvest, Early Red Margaret, Kerry Pippin, Early Nonpareil, Pitmaston, Pearson's Plate, Ribston Pippin, Ross Nonpareil, Old Nonpareil, Lamb-Abbey Pearmain, Sturmer Pippin, and Court Pendu Plat. Of *Cherries*: Early Purple Griottte, Early May Duke, Black Eagle, Elton, Bigarreau, Florence, Late Duke, Morello, and Buttner's October Morello. Of *Plums*: Précoce de Tours, Morocco, Orleans, Drap d'Or, Greengage, Royal Hâtive, Reine Claude Violette, Coe's Golden Drop, St. Martin's Quetsche, Washington, Jefferson, Wine-sour, Magnum Bonum, St. Catherine, and Ixworth Impératrice. In the preceding lists we have named the varieties in their order of ripening; but in this of *Pears* the months named are those in which the fruit is ripe. *July*, Doyenne d'Été. *August*, Benoist. *Sept.*, Williams' Bon Chrétien, Beurré d'Amalis, Jalousie de Fontenay Vender. *Oct.*, Duchesse d'Orleans, Marie Louise, Fondante d'Au-

tomne. *Nov.*, Beurré Bosc, Thompson's, Doyenne Gris, Urbaniste. *Dec.*, Hacon's Incomparable, Triomphe de Jodoigne. *Jan.*, Beurré Langelier, Knight's Monarch. *Feb.*, Inconnue Van Mons, Susette de Bavay, Duchesse de Mars. *March*, Beurré Bretonneau. *April*, Fortunée Parmen-tier, Bergamottée d'Esperen.

ORCHARD HOUSE. This is the name applied by Mr. Rivers, nurseryman, Saw-bridgeworth, to cheap glazed structures, in which he grows hardy fruits in pots, and planted in the borders.

We have found that such a green-house, without any heating apparatus, is most useful, not only for growing Grapes, Peaches, Nectarines, and Apricots, but early Peas, Radishes, Strawberries, Let-tuces, small Salading, and Potatoes. Such a structure is the following, de-scribed by Mr. Rivers, in his highly use-ful work, "The Orchard House."

We will suppose that an orchard house thirty feet long is required. A ground plan, thirty feet long and twelve feet wide, must be marked out, ten posts or studs of good yellow deal, four inches by three, and nine feet in length, or if larch poles, sixteen inches in girth, can be procured, they are quite equal in durability; these latter must be cut in two, and the flat sides placed outwards; these posts, or studs, whether larch or deal, must be fixed two feet in the ground firmly, and the ground ends must be charred two feet four inches from the bottom, which adds much to their durability: it will thus be seen that this, the back line of studs, will stand seven feet in height clear from the surface. For the front wall, ten studs, four feet long, must be inserted in the ground one and a half feet, so that they stand two feet six inches clear from the surface; on these studs, both at front and back, must be nailed a plate four inches by two and a half, on which the rafters are to rest; the studs are thus far arranged in two lines. Now, then, for the rafters: these must be four-teen feet long, and four inches by two in thickness, placed with the narrow sur-face upwards, to spare the trouble of "ploughing," to make the rebate for the glass, which is great labour and waste of material. On the upper side of each rafter, exactly in the centre, must be nailed a slip of half-inch board, three-quarters of an inch wide; this will leave half an inch and one-eighth on each side

for the glass to rest on—not too much when the width of the glass is given. We have thus the rafters so far prepared for glazing, but not yet fitted on the plates at top and bottom: they must never be morticed, but let in at top by cutting out a piece, and sloped off at bottom.

To receive the glass at the top of the rafters, a piece of three-quarter-inch deal board, six inches wide, must be nailed along the top to the end of each rafter, so as to be even with the surface, and in this should be a groove to receive the upper end of each piece of glass; at the bottom, a piece of board, one inch thick and six inches wide, must be let in for the glass to rest on, and to carry off the water. We have thus so far a sloping roof, seven feet three inches (with the plate) high at back, and two feet nine inches high in front; but the glass is not yet in. The most economical glass is sixteen-ounce British sheet, which can be bought at 2½d. or 3d. per foot, and the best size twenty inches by twelve; put-tying the laps, as it prevents breakage by frost; placing it cross-wise, so that the rafters must be *about twenty inches asun-der*. On and outside the back studs, half-inch boards must be nailed, well seasoned, so that they do not shrink too much; these must be painted white. In the back wall, sliding shutters, two feet six inches by one foot, in grooves, must be fixed, for complete ventilation; two close to the roof, and two about eighteen inches from it.

The front must have, also, half-inch boards nailed on outside the studs; one of them, the upper one, to be on hinges, so as to let down the whole length of the house; these, when all open in hot wea-ther, ventilate thoroughly. To add to this (and it is all required in summer), the boards will shrink and let in air: a fierce sunlight is thus admitted by the large glass, and abundance of air, in which all fruit-trees thrive to admiration. So much for the timber and glass; but when one sees that to walk along the centre of the building, which is about four feet nine inches in height, a per-son must be of very diminutive stature, the inquiry arises, How is head-room to be made? How simple is the an-swer! Make a trench two feet six inches wide, and two feet deep, in the centre of the ground plan; this will leave a border

on each side four feet nine inches wide. The bottom of this trench forms the foot-path; its sides must be supported with boards, or with four-inch brick-work. Now, as everything depends on these borders—for there must be no benches and no shelves—care must be taken to make their surface loose and open: loose materials, such as coarse cinders, lime-rubbish from old walls, or bricks broken into pieces in size from a nut to a walnut, may be laid on them about four inches deep; they may then be forked over to about nine inches in depth, well mixing the above materials with the soil; you thus have two borders not too far from the glass, and on which your orchard will thrive admirably. It will appear odd to read about trees thriving on instead of in a border; but when explained that this is to be an orchard in pots, it will not seem so contrary to our usual garden-culture.

ORCHIDS are divisible into two classes, the *Epiphytes*, or those growing upon trees, and *Terrestrial*, or ground-orchids, which grow upon the earth. The two classes require some difference as to the mode in which they are grown, a difference pointed out in this work under each genus in its alphabetical order. At present we shall confine ourselves to such general directions as are applicable to the cultivation of both classes of *Orchids requiring Stove treatment*.

House for Orchids.—As they require great light, the house ought to be so placed as to catch all the rays of light from the sun. A span-roofed one will do so, or to the greatest degree; and so low in the angle, that the plants, whether in pots or baskets, or on logs of wood, will all be near to the glass. We find the best aspect is for the roof to fall due east and west; then the length-way of the house will, of course, be north and south. By this means the heat and light of the sun are more equalised. In the cold mornings of early spring the sun will sooner give light and heat on the east side, and will be at noon in such a position that his beams will be slanting to the angle of the roof, whilst in the afternoon his power to give light and heat will be considerably prolonged. Every plant in this house will thus have its due share of light and heat. During the hot months of May, June, July, and August, the shade or blind can be let

down on the morning side of the house, drawn up at noon, and let down on the afternoon side just as the sun shines; thus giving the plants all the light possible, and at the same time protecting them from the burning rays of the sun. There need not be any upright glass at the sides or ends of the house. The walls ought to rise high enough to allow a comfortable walk and head-room. The rafters and lights ought to be fixed, and to give air a few openings may be easily contrived in the highest part of the house, and a few sliding panels near the floor in the walls. This cold air ought to flow in over the hot pipes, and to become heated before it comes in contact with the plants. In summer, when there is no heat in the pipes, the external air is naturally so warm that no injury will accrue to the plants by admitting it into the house without being artificially heated. It is almost absolutely necessary to have more than one house. However small the collection may be, there will be some that require more heat than the others. The orchids of South America will flourish far better in a house of moderate temperature than in a house highly heated. This house we would distinguish by the name of "the Mexican house." The orchids, natives of Java, Borneo, Singapore, the Philippine Islands, and the hot jungles of Hindostan, require, on the other hand, a much higher temperature, and close, moist atmosphere. The house for these plants we would designate "the East Indian House." By having two houses a considerable number of advantages will be secured. The Indian tribes, as soon as they have made there growth for the year, where there are two houses, may be removed into the cooler or Mexican house; and that removal or change of temperature will harden their pseudo-bulbs, and concentrate the sap, causing them thereby to become more healthy, robust, and free to flower. Should any of the South American species require a little more heat, they could be conveniently removed into the Indian house to make their growth. The cooler house will also be useful to place any of the Indian species in when in flower, which change will considerably prolong their season of blooming. The two houses may join each other, divided by a partition either of brick or glass. We should prefer glass, as being neater, and showing off

the plants, in both houses, to greater advantage.

Heating.—As these plants require, during the seasons of growth, a larger amount of moisture than most other plants, the plan to effect this is to heat the houses with hot-water pipes, laid in tanks. The water in these tanks should be deep enough to cover the pipes about an inch with water. The tanks need not be more than ten inches wide, inside measure. The diameter of the pipes should be three inches and a half. At some convenient place there ought to be a tap to let off the water out of the tanks. This ought to be done frequently, in order to obtain a sweet moisture. If the water be allowed to remain in the tanks for a length of time it becomes foul, and then, when heated, sends forth a disagreeable smell, which is very unhealthy both to plants and persons. In winter, when the plants are, or ought to be, mostly at rest, they require a drier atmosphere. In order to induce this, the tanks ought to be emptied during the winter months, from the middle of October to the middle of February. Should the plants appear to shrivel too much, the pipes may be occasionally syringed early in the mornings of fine days. The number of pipes and tanks required depends, of course, upon the size of the houses. The large house at Messrs. Henderson's, of Pine-Apple Place, has four tanks in it; the width of the house is eighteen feet. Two of those tanks are open, that is, have no cover, and are placed under a platform formed with large, thick slates, spaces being left between each to allow the moisture to ascend amongst the plants. The other tanks have covers to them, with holes to let out the moisture. These holes have brass lids to them, so that the moisture can be confined as circumstances require. Now, this answers the purpose well during the months of spring; but we have too much moisture during winter, so that the plants grow more than they flower. Supposing, then, a house eighteen feet wide requires four tanks, a house fourteen feet will require three; nine feet, two; and less than that, only one. The return-pipes may run under the tanks to the boiler, or, if the tanks are placed so near the floor that the return-pipes cannot be placed under, they may be arranged to run on one side. The best kind of boiler we know is one

formed of several round pipes, connected at each end by a square one. From this square pipe the hot water rises into the tanks, and the return-pipes bring the water back to it to be reheated. Mr. Taylor, the hothouse builder at Kensal New Town, is in the habit of putting up these boilers, and they answer admirably.

Shelves.—In any convenient part of the house where a shelf can be put so near the glass as to allow plants in pots to be placed upon it, it is desirable to have them. We have always found small plants in pots, that have made a good start, do well in such a situation. The plants, however, should not be too near the glass. The extremity of the leaves should be at least nine inches from it. The shelves, also, should not be placed where the water that overflows or runs through the pots will drop upon any plants.

Stages.—The arrangement of these will depend upon the width of the house. If the house is wide enough to allow a walk all round it, and a walk in the centre, there will be two stages. The centre walk should be elevated as high as possible, to allow head-room for the manager and visitors to walk comfortably. This elevated walk is of considerable use, affording a good opportunity to watch the progress and state of the plants, and to observe when they require watering, repotting, and cleaning from insects. An example of this arrangement may be seen in the orchid-house at Kew.

Shelves of the Stage.—Every shelf ought to be a shallow cistern to hold water. Blue slate is the best material to form each shelf on the stage. The upright slate forming the sides of each ought to be elevated at least two inches, and made water-tight. These cistern-shelves may either be filled with small, pebbly gravel, all the sand or other binding material being washed out of it, to prevent its setting hard, or they may be left empty, and shallow pots turned upside down, just high enough to allow the plants to stand clear of the water; for it is intended that these cistern-shelves should be, during summer, kept full of water. These shelves of the stage must be as near the glass as the size of the plant will allow. Several advantages to the health of the orchids accrue from this arrangement. The most important is a constant supply of moisture to the air, at a time when the heat of summer renders

the application of heat to the tanks unadvisable. Another advantage is the prevention of the attacks of insects, such as woodlice and slugs. These destructives cannot travel through water; and as the plants stand, as it were, upon a number of little islands, they are protected both day and night from these devouring enemies. Care, however, must be taken that the citadel itself does not harbour them. The cockroach and woodlouse often secrete themselves during the day amongst the rough pieces of turf and broken pots used as drainage. If there is any suspicion that these enemies are in these secret places, they must be diligently sought for, by visiting the houses with a bull's-eye lantern by night, and catching them at their depredations. Pursue them with all your diligence. Should the tender roots, or flower-shoots, still appear to be eaten occasionally, take the severe measure of turning the plants out of the pots, and search for the vermin amongst the peat and potsherds, and when they are once entirely got rid of, take care to place the plants so that their leaves do not come in contact with anything that will form a bridge for the insects to travel on.

Hanging up Plants on Logs or in Baskets.—Large-headed nails, or hooks, may be driven into the rafters, or strong iron rods, well painted, may be suspended along the roof over the walks, and strong iron hooks, shaped like the letter S, placed at proper distances to hang up the various kinds of plants that require such situations. We recommend the situation for these to be over the walks, to prevent the water, when applied upon the plants, falling on the stages or shelves.

Where these plants are numerous, it is advisable to devote a part of the house to them. Underneath would be a convenient situation for a cistern to contain the rain water that falls upon the roof—the best of all water for watering purposes.

Cistern.—This is almost indispensable. The one in the orchid-house at Messrs. Henderson's is formed with slate one inch thick. The great use is the heating the water for syringing and watering purposes. Another use, and an important one too, is for dipping the blocks with the plants on them; also to dip the *Stanhopeas*, *Gongoras*, and other plants in baskets. When those plants begin to grow in the spring they require a good

steeping, and the cistern offers a proper place for that purpose. Two or three hours will not be too much to steep them. The peat during the time of rest becomes dry and hard, and requires this wetting to soften it, especially if the plants are to be shifted into new baskets.

As orchids require frequent syringing, sometimes twice or thrice a day, we have made use of pots—garden-pots, in fact, without holes. These are placed round the house, near the hot-water pipes, at a small distance, about six or nine feet apart. Our readers that are in the habit of syringing will immediately perceive the great saving of time and labour by having these pots so handy. Instead of having the water to carry in garden watering-pans, these pots, being kept constantly full of warm water, are always ready.

Syringing in Winter.—During the dark days of winter the operation of syringing requires considerable judgment. A large number of orchids will be at rest, requiring but little water, especially those *in pots*. Others, *on logs*, must be syringed on such mornings as the sun is likely to shine. There are, however, a few plants, even in pots, that are much benefited by the free use of the syringe at all seasons of the year. *Huntleya violacea* and *H. meleagris* are two plants much improved by this mode of treatment; and the reason they are so improved is evident enough, when we consider the situation in which they grow naturally. Dr. Schomburgk found them growing on moist rocks, near to a cataract, on a river (Essequibo, we believe) in British Guiana.

All the Indian tribes that have no pseudo-bulbs require more syringing in winter than those that have such reservoirs of vegetable life to sustain them. The generic or family names of such as we mean are—*Aerides*, *Angraecum*, *Phalænopsis*, *Renanthera*, *Saccolabium*, *Sarcanthus*, and *Vanda*. All these have a simple stem, clothed with leaves. If exposed to a high, dry heat, the leaves and stems will shrivel much more than is beneficial to their health; therefore, whenever a shrivelling is perceived, let them have a gentle syringing, thoroughly wetting the whole plant. This will revive them, and keep them fresh and healthy.

Syringing in Spring and Summer.—It is during these two growing seasons that

the syringe is most beneficial, and then they should be deluged almost with showers from the syringe, taking the precaution to allow them to become dry once a day. They are sure to become dry enough during the night. Let the water from the syringe be milk-warm rain water, and let it fall gently upon the plants, thus imitating natural showers of rain as much as possible. We have found the plants much refreshed in summer by a gentle syringing, when it was actually raining out of doors. In truth, if such a thing could be managed, we should be glad to expose them, during the gentle, warm showers of April, to the rain that falls from the clouds. We are quite sure it would do them good. It is, however, the plants on logs that benefit most by the use of the syringe, both in winter and summer. Of course, they require the most when they are making fresh roots and growths; but even when at rest they must be syringed occasionally, to prevent the roots and pseudo-bulbs from shrinking too much. In that state, the finest-rosed syringe must be used, to prevent so much water falling upon the plants (if any) below.

During the seasons when the syringe is used most freely, should any of the plants have perfected their growth, and consequently require less water, place such in a corner of the house by themselves, and syringe them less frequently. Towards the end of summer the whole of the plants ought to be perfecting their growths, excepting the Indian ones above-mentioned and the *Huntleyas*. These grow, more or less, all the year, but others must have an entire rest; therefore, cease syringing so much as soon as you think there is a fulness and ripeness about the pseudo-bulbs, showing that they have made the growth for the year. If you continue syringing as much as ever, there is danger of starting them again into growing prematurely, and then you will have weak, puny shoots, and injure both the flowering and growth for the ensuing season. It is impossible to give any particular time when to cease syringing, or watering at the root with a garden-pot; experience and observation must guide the cultivator. In general, we may say the quantity of water, whether applied with the garden-pot or syringe, ought to be considerably lessened towards the end of summer—that is, about the

end of August. The pseudo-bulbs ought to be then fully formed; and, whenever that is the case, they require much less water. By the middle of October the water ought to be entirely withheld, excepting just enough to prevent the plants from shrivelling.

Shading.—We use a kind of canvass called “bunting.” It is thin and open in the mesh, yet just close enough to prevent the rays of the sun striking through the glass, and injuring the flowers and leaves. We shall try to describe how it is applied. First, a pole about two inches in diameter, of the length of the house, or rather longer, is made of deal, and quite round. At one end a kind of wheel is fixed, of larger diameter than the pole (about one-third). On each side of this wheel a round board is nailed, projecting beyond it about three inches. These boards are about three quarters of an inch thick; and are bevelled off from the inside. When this is done, it forms a groove. This is intended to receive the cord, it being nailed to the wheel. The canvass is then nailed to the long pole, it having first been sewn together of the size of the house. The pole, with the canvass attached to it, is then laid upon the house, a flat piece of wood 2½ inches wide, and a quarter of an inch thick, is nailed to the highest point of the house, and the canvass is tightly stretched and nailed to the flat piece of wood, using some narrow woollen lists, stretched along it previously to driving in the tacks. This prevents, in a great measure, the canvass from tearing off with the winds. Then, taking hold of the cord now wrapped round the wheel, and pulling at it, the wheel turns round, and, of course, the pole also; the canvass wraps round it, and, at last, is rolled up at the top; the cord is then fastened to a long kind of button, and there remains till shade is required. The cord is then unfolded, and the pole let gradually down to the bottom, where some pieces of wood stop it from going off the house, or tearing away the canvass from the top. It may be made to last longer, by having weather-boards fixed on the top of the house to receive the canvass when rolled up under it, thus sheltering it from the rain, which is the great cause of its decay. Care must be taken, when it is rolled up, that it is perfectly dry. During the dark, short days of winter, when the sun has not power to injure the plants,

the blind may be stored away in some dry shed or room till the days lengthen, and the sunshine becomes dangerous to the well-being of the plants.

The proper amount of Heat, Moisture, and Air the Plants require at all times of the year.—The power of heating should be more than is required in ordinary winters, in order to be prepared for those very severe ones that sometimes occur. It is always easy enough to give less heat in moderate weather by having less fire applied under the boiler. The degrees of heat required we shall now give for all the year.

INDIAN HOUSE.	FAHRENHEIT.			
	Day with Sun.	Day without Sun.	Night.	Morn.
Spring	75	70	60	55
Summer	85 or 90	70	65	60
Autumn	70	65	60	55
Winter	65	60	55	50
MEXICAN HOUSE.				
Spring	70	65	60	55
Summer	75	65	60	55
Autumn	60	55	50	50
Winter	55	50	50	45

Our readers will perceive that the lowest temperature at all seasons is in the morning; that is, before the fires are stirred. The heat in the mornings in summer will depend upon the heat of the atmosphere out of doors; the rest of the day may be regulated by giving air. The principle of having a lower temperature during the night is perfectly natural. The variations even in tropical countries, in that respect, are great.

Watering with the Garden-pot.—As a general rule, let it be laid down never to water an orchid except it requires it; therefore, in commencing to water, observe each plant well, but quickly, and water accordingly. An orchid requires watering when it is growing and dry. The quantity to be given depends, again, upon the stage of its growth. If the young shoots and new roots are just beginning only to make their appearance, they require a very moderate quantity; but, as then the plant ought to be repotted, and the new, fresh compost is, or should be, moist of itself, the water must be withheld until the surface, at least, feels quite dry to the touch. Again, the water should be applied at a small distance from

the young shoots, which ought never to be saturated, or even wetted, especially either in the dark, cloudy days of winter or of early spring. In summer, when the heat is increased, the sun shining, and air given, the operator need not be so nice, as the extra water will soon evaporate, and dry up even from the young and tender shoots. When the young shoots begin to form pseudo-bulbs, the quantity of water may be increased, care being taken that it does not lodge in the leafy sheaths which surround the green or young bulbs, especially of *Cattle'yas*. We have often seen a year's growth destroyed by allowing the water to lodge in those tender parts. The way to remedy this is with a sharp knife, or a small pair of scissors, to slit open to the bottom the sheaths that hold the water; but this is an operation that must be done very carefully, without injuring the young pseudo-bulb, or the cure will be as bad as the disease; for, if you wound a pseudo-bulb, ten to one it will perish. As soon as these sheaths turn yellow, and not before, they may be entirely removed safely. When in that state they will easily part from the bulb without injuring it, if carefully pulled off. When the growths are young, whether the water is applied with the rose or spout alone, it will generally be quite sufficient to wet the earth or compost only round near the edge of each pot. If the water is poured indiscriminately all over the surface of the compost, especially in the early season of the year, the consequence will be to endanger the young shoots. At that season, and in that state, if the water is slushed upon the plants, it will cause several, if not all of the tender young growths to perish; but as those growths begin to approach their usual size, and the warm, long, sunshiny days prevail, that is the critical or very time orchids require an abundance of water.

Giving Air.—The method we recommend to give air by is with wooden shutters, let into the wall at intervals of four feet between each, on each side of the house. The wooden shutters, or doors, should be 2½ feet long by 15 inches broad. A frame of wood ought to be fitted into the opening in the wall, to hang the shutters on. These should swing on the centre with two iron pins, so that when they open they will be horizontal, and let the air into the house

plentifully. When less air is required, every other aperture need only be opened, or the shutters may be propped only half open. When they are opened, the fresh air will rush in, and, meeting with the pipes in its progress, will be partially heated and softened before it comes in contact with the plants—a point worth attending to. For nine months in the year this way of giving air to the Indian house will be found all that is wanted. During the three hot months of summer, it will be necessary to give some air at the highest part of the roof. The ridge of the house should be made flat, about nine inches broad, and parts of it made moveable, to lift up with an iron rod whenever the heat of the internal air exceeds the proper degree. This is the guide on all occasions and all seasons. When the heat is too much, give air.

It will be found that the Mexican house requires more frequently to have air given to it than the other, because the plants in it do not require so much heat. To know, at all times, when to give air, have a copy of the table of heat for the orchid-house copied, and hung up in a convenient place to refer to.

Resting.—To know when the bulbs are in a proper state to go to rest may be, to our readers, of some consequence. They ought to be strong, and, if expected to flower, at least three feet high, stout, and firm, quite to the apex. All the leaves ought to turn yellow, and drop off in the same manner as any other annually leaf-shedding plant; and all this ought to take place early in autumn. As soon as it does so, remove the plant, or plants, into a drier and cooler house, and keep them there until the buds at the bottom of each pseudo-bulb begin to appear.

Cleansing the Leaves.—Take down the plant from its high position; if the moss or peat, whichever it may happen to be growing in, is dry, give it a good soaking in the cistern, the water of which is at a temperature of 70°. Whilst it is soaking, all dead leaves are to be carefully removed, and every part of the plant thoroughly washed with a sponge. If the leaves are thick and leathery, the sponge is to be rubbed over them several times with a heavy hand. In fact, it might be called a good scrubbing; being careful, of course, not to injure it. For more tender leaves, we have, very lately, used something else. We observed that the

sponge, though used ever so lightly on these tender, thin leaves, injured them slightly. Happening to observe a piece of thick leather, such as soldiers' belts are made of, it was taken and wrapped round the end of a small stick, fastening it firmly to it with some small copper wire, leaving half an inch of it projecting beyond the stick; it had then the appearance of a brush made of leather. With this instrument the leaves were washed, and it was so soft and pliable that it did not injure the youngest or tenderest leaf, yet effectually washed the dust and dirt off from the leaves. This washing not only clears off the parasites and any other obstruction, but also destroys insects, particularly the red spider and black thrip, two of the most pernicious enemies to orchids. Let every part of the plants be well cleansed—leaves, stems, and pseudo-bulbs. Not only will the plants look better, but they will be greatly benefited in their health.

Potting.—Generally, speaking, the months of January, February, and March are the proper times; but as there is no rule without exceptions, some orchids require potting at all seasons of the year. The beginner may know when to pot his plants by this observation:—Whenever they are determined to grow, they must be potted. The only precaution necessary to observe, in the dark seasons, will be to use the stuff you pot them in (for it can hardly be called soil) in a moderately dry state, and give no water excepting a sprinkling to settle the compost.

In the first place, have ready a quantity of broken pots or potsherds of several sizes; next, procure some good turfy peat, knock it into pieces with a heavy hammer, crushing the finer soil entirely out of it; then pass it through a fine sieve, and what remains in the sieve is the best stuff for orchids: it is light, open, and porous. Next, have some charcoal at hand, broken into pieces no larger than a hen's egg, nor smaller than a hazel nut. Another article, and you will have all you need for pots and baskets; this is white bog-moss, or sphagnum, which should be partially chopped with a sharp hatchet, and the dust also sifted out of it. We have a great abhorrence for anything close or fine about orchids, excepting terrestrial ones.

Having all in readiness, take your plant, turn it out of the pot carefully, be

mindful of the roots, and bruise or injure them as little as possible. Perhaps some roots will be found adhering very firmly to the sides of the pot, to part them from which we have used a long, thin-bladed knife, thrusting it carefully down between the root and the pot. In very bad cases we have found it necessary to break the pot; but this must be done very gently, or the very act of breaking may destroy the roots. The plant being cleared from the pot, shake away all the old compost; then examine the roots closely, and cut off all the dead ones. This is a convenient opportunity, also, to look after insects, especially the white scale, the most pernicious of all vermin to orchids, excepting, perhaps, the black thrip. With a brush clean them all off, and wash the whole plant with strong soap-water. Your plant is now ready for potting. Choose a pot of the proper size: generally speaking, orchids, to grow them well, take larger pots in proportion to their size than any other class of plants. Let your pots be perfectly clean both inside and out. Lay a large piece of potsherd over the hole at the bottom of the pot; then place some rather smaller pieces of the same, and over these the smallest ones. Altogether the pot ought to be three-parts filled with this drainage. This point is of the utmost importance, for if the plants are not superlatively well-drained they will not thrive long or satisfactorily. Over this drainage place a thin layer of charcoal, and then a layer of the turfy peat, mixing with it some broken pots and charcoal. Introduce the plant now, and spread the roots, if many, all over the surface of the compost, working it amongst them, gradually filling it in till the pot is full, and keeping the body of the plant well up; raise the compost up about two or three inches above the level of the edge of the pot in proportion to its width. A small pot need not have the plant above one inch raised, a middling plant two inches, and for the largest-sized plant three inches will be sufficient. The whole of the plant, pseudo-bulbs and all, excepting the roots, ought to stand clear up above the compost. It will be loose and ready to tumble over if of such kinds as *Catleyas* or *Dendrobiums*; to prevent which, thrust into the compost some stout sticks, and tie each pseudo-bulb to each stick firmly. These will secure the plant, and give it a neat, tidy appearance.

Orchids in Baskets.—A considerable number of species require baskets, because the flower-stems are pendent, and, consequently, naturally require a position to allow the flowers to grow down. In fact, some send the flower-stems perpendicularly down through the soil or compost. Now, if these are grown in pots, the flower-stems run down into the soil, and there perish. It is true they have been grown in pots on a hillock built up six inches or a foot above the rim of the pot, and then part of the flower-stems manage to find their way to the outside of the little mound; but a considerable number descend straight downwards, and soon rot for want of air and light. By growing them in baskets this evil is prevented, and every raceme (bunch) of flowers arrives at perfection.

The baskets should be of a size suitable for small plants—small ones requiring only small baskets, middling ones the middle-sized, and large ones in proportion. The way to basket the plants is this:—Have the peat or compost prepared exactly as for potting above-mentioned; cover the bottom of the basket with a thin layer of moss—green would do, though we prefer white, or sphagnum. This moss is to prevent the peat from dropping through the openings between the rods forming the bottom. Then place a portion of peat upon the moss. In the next place, prepare the plant by taking it out of the old basket or pot, or perhaps off from a log. Do this as carefully as possible, without injuring the living roots. If the old peat, in which it has been growing, perhaps, for years, is very hard, and the living roots are so firmly attached to it that they cannot be detached without breaking them, take the plant and put it into the cistern, and let it remain there till the peat is thoroughly soaked. Take it out, and set it in some convenient place to drain off the water. If this is done a full week before you intend to re-basket the plant, it will be all the easier to do; the object being to soften the peat so as to be able to pick away, with a small-pointed stick, as much of the old peat as possible. Examine, also, the pseudo-bulbs and leaves, and clean them thoroughly from dirt and insects. Prune away all dead roots, and then the plant will be ready to be put in its new habitation. Place it in the middle of the basket, and fill in all round it with

the new compost. Set the basket then on the floor, and, with the syringe held pretty close to the peat, give it a good watering, forcing the water out of the syringe pretty strongly: this will be found to make the compost firm, so that future waterings will not wash it off the basket on to the floor, or plants underneath. One thing we would especially guard our readers against, and that is, having the baskets made deep. Some may have an idea that if the plants have a large lot of stuff to grow in they will thrive better, and produce more flowers; but this is a mistaken notion. The roots of orchids of this class run on the surface, or, at least, very closely beneath it; in truth, if the air is properly surcharged with moisture, the roots will prefer running out of the compost. Frequently the long roots of *Stanhopeas*, that push strongly, and run along the surface of the compost, send forth fibres, not into the compost, but, strange to say, upwards into the congenial air, gathering, as it were, aerial food to support and feed the plant they belong to. This proves satisfactorily enough that deep baskets are no advantage even to the growth of the plant, but to the flower-stems of some kinds of *Stanhopeas* they are certainly injurious. We say *some kinds*, such as *Stanhopea insignis* and its varieties, *S. tigrina* and its varieties, and all that have, like these, short and few-flowered racemes. Such kinds as *S. oculata*, *Wa'rdii*, and *quadricornis*, which have long flower-stems, may find their way through a deep basket, but would do so easier and safer through a shallow one.

Pots.—The kind we use and prefer may be described as a shallow, wide pot, the proportions of which are as two, three, and five; that is, two inches wide at the bottom, three inches deep, and five inches wide at the top, all inside measure. Larger pots to be in the same proportions. Small ones need only have one hole at the bottom; but it should be larger than those generally made. For the two-inch-wide pots at the bottom, the hole ought to be three quarters of an inch in diameter, the great object being to allow the escape of water quickly. Larger pots must have three holes, each of the same diameter. Hard-burnt ones must be avoided for these plants, as well as for any other. The reason why we prefer these wide, shallow pots is, that the roots of orchids are, generally speak-

ing, either on the surface or very near it; besides, a large proportionate surface is exposed to the benefit of air and moisture, both of which are beneficial to the roots of an epiphyte. Terrestrial orchids, whose roots descend deeper, will be better in the ordinary-shaped pot.

Baskets.—Various materials and forms have been used in this necessary article. The first probably was made of common iron wire, painted green, and the form round, deep, and with a flat bottom. This material is almost entirely disused, for, although the paint for a time prevented them from rusting, the great moisture and heat soon decomposed the paint, and then the wire became oxydized, or rusty, and is then very injurious to the roots, as well as being unsightly. Those made with copper wire are much better, lasting longer, and are not so injurious to the plants. The only objection we know of is the expense. Where that is no consideration, we should have no great objection to their adoption. Baskets have also been made of earthenware; but, if there was no other objection, their great weight would be sufficient to set them aside as bad. We have tried all these, and have come to the conclusion that baskets made of wooden rods are the best for this purpose. We mentioned before, that the most ornamental are made of the corrugated or rough-barked maple rods; but, as these are not always to be met with, hazel rods may be used, and make excellent baskets. The way we make them is simple enough. First, the rods are sawn into proper lengths. The smallest we use are about the thickness of a man's middle finger. With this size, the smallest baskets are made. These are seven inches wide, and three rods deep. In this size, small *Stanhopeas*, and small plants of *Acrides*, *Saccolabiums*, *Vandas*, *Gongoras*, &c., are grown. For larger plants, larger baskets are made, and thicker rods used. The largest we ever had occasion to make was for a fine plant of *Acrides odorata*. This plant is four feet high, and two and a half feet through. The rods used for it are nearly as thick as a moderate-sized man's wrist. The basket is two feet square, which is the shape we prefer, as being the most simple and easiest made. When the rods are sawn into lengths, the ends are pared smooth with a knife; then small holes are bored through each, one

at each end, as near it as possible without splitting. The instrument used to bore the holes with is a very small steel rod, about six inches long, with a wooden handle; it is filed to a point at the end intended to bore the hole with. We find it convenient to have two or three, for a reason we shall state presently. After a certain number of rods are cut and smoothened, they are taken to a place where there is a small, clear, red fire; the sharp end of one of the borers is put into it about one inch. As soon as that is red hot, the other is put in, the heated one drawn and thrust into the rod very near the end, and held there as long as it continues to burn its way without much pressure. If too much force is used, the wood will be apt to split. As soon, therefore, as the instrument ceases to burn its way through, it is replaced in the fire. The other by this time will be red also; this is then taken out of the fire, and applied to the hole. This operation is thus performed with each bore alternately till the hole is made through the rod. The description of this operation takes up considerably more time than the operation itself. It is quickly and easily done, as any of our readers may prove on trial. After as many rods are bored as may be wanted at one time, the next thing is to put them together. The articles necessary for this are some copper wire and a few flat-headed copper nails. Each basket will require four lengths of wire, the length of each to be in proportion to the size of the basket they are intended for. They should be long enough to meet at least eight inches above the top of the smaller-sized baskets, and from a foot to eighteen inches above the larger ones. At the end of each piece of wire make a loop so large that it will not draw through the holes; then lay the first two rods, and upon them, for the smallest basket, lay three others; nail these three to the two outside rods, thus forming a sort of raft, to use a nautical term for want of a better; turn this over, and underneath it put two other rods, to form the other two sides of the basket; then draw the four pieces of wire through the holes at each corner, the looped end being underneath. Continue to lay a pair of rods alternately, drawing the wire through each till the basket is of the required depth. The smallest size, three rods

deep; the two next, four deep, and so on. When that is done, make four small pointed pegs, and drive them into each hole at the four corners. This will fasten the rods in their places, and prevent them from ever starting upwards; then draw the wires together at the top, twisting each pair over each other, and fasten them with a piece of fine wire. Your basket is now complete and ready for use.

Logs.—None are so good as the wood of the *Acacia*, commonly so called, but which really is the *Robi'nia pseu'do-aca'cia*. Its wood is firm, and does not soon decay. The next best is the oak. In all cases we strongly recommend the removal of the bark; our objection to retaining it being, that it only serves as a hiding-place for wood-lice, small snails, and other destructive insects, besides retaining in winter too great a quantity of moisture. The wood should be procured a year before it is used, and then the bark will come off very easily. We except cork wood, which we think very good when it can be procured readily for this purpose; and the bark of cork suits the orchids well, and, unlike the others, does not rot so soon, and, consequently, has not the objection to its use of being a receptacle for vermin. The best wood for baskets is the rough-barked, common maple. The branches of this tree make the handsomest baskets; but as it is not so plentiful as the hazel, the latter is the sort we recommend. Some object to baskets of this description on account of their soon perishing. This we consider no objection at all, but rather an advantage; for as soon as the basket is decayed the plant has grown so large that it requires a new one, and the rotten sticks of which the old basket is made are more easily broken and removed than sounder ones.

O'RHIS. (From *orchis*, testiculate; referring to the two oblong, bulb-like roots of many of the species. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-*Gynandria* 1-*Monandria*.)

Chiefly an European genus of ground-orchids. Seeds, as in *Ophrys*, when obtainable; division of the tuberous roots, though they do not relish transplanting well; it should be done when the plants are in a dormant state. The British species are chiefly found on chalky hills, and in pastures where calcareous matter abounds. The exotic kinds like an addition of fibry peat. The tender ones, in fact all, when cultivated, should be treated as alpine; those found in rich pastures require a moister situation.

- O. acuminata* (pointed-flowered). 1. Purple. May. Barbary. 1815.
 — *coriophora* (bug-bearing). 1. Brown. June. Switzerland. 1825.
 — *foliosa* (leafy-spiked). 1. Purple. May. Madeira.
 — *fuscescens* (drying-brown). $\frac{1}{2}$. Yellowish. June. Pennsylvania. 1831.
 — *globosa* (round-spiked). $\frac{1}{2}$. Purple. June. Austria. 1792.
 — *Iberica* (Iberian). White. June. Caucasus. 1819.
 — *latifolia* (broad-leaved). 1. Pink. June. Britain.
 — *laxiflora* (loose-flowered). $\frac{1}{2}$. Purple. June. Europe. 1820.
 — *longibracteata* (long-bracted). $\frac{1}{2}$. Purple. May. Sicily. 1818.
 — *longicornis* (long-horned). $\frac{1}{2}$. Purple. May. Barbary. 1815.
 — *maera* (lean). Pale purple. May. Britain.
 — *maculata* (spotted). $\frac{1}{2}$. Flesh. June. Britain.
 — *maesula* (male-early). 1. Purple. May. Britain.
 — *militaris* (military). 1. Purple. May. Switzerland. 1825.
 — *vera* (true). Purple. May. Switzerland. 1825.
 — *moirio* (buffoon). $\frac{1}{2}$. Purple. May. Britain.
 — *papilionacea* (butterfly). $\frac{1}{2}$. Purple. April. Rome. 1788.
 — *provincialis* (province). $\frac{1}{2}$. Purple, yellow. June. Switzerland. 1825.
 — *pauciflora* (few-flowered). $\frac{1}{2}$. Purple. July. Italy. 1825.
 — *pseudosambucina* (false-elder-smelling). $\frac{1}{2}$. Purple. April. Italy. 1828.
 — *lutescens* (pale yellow). $\frac{1}{2}$. Yellow. June. Italy. 1828.
 — *quadripunctata* (four-spotted). $\frac{1}{2}$. Purple. April. Italy. 1828.
 — *sacca* (pouched). $\frac{1}{2}$. Purple. April. Sicily. 1828.
 — *sambucina* (elder-scented). $\frac{1}{2}$. Yellow. April. Switzerland. 1825.
 — *spectabilis* (showy). Pink. June. N. Amer. 1801.
 — *tephrosanthos* (ash-coloured-flowered). $\frac{1}{2}$. Purple. April. England.
 — *densiflorum* (crowded-spiked). 1. Purple, white. May. Europe.
 — *undulata* (wavy). 1. Pale purple. December. Sicily. 1818.
 — *undulatifolia* (wavy-leaved). Pale purple. May. Britain.
 — *ustulata* (scorched). $\frac{1}{2}$. Purple. May. England.
 — *variegata* (variegated). $\frac{1}{2}$. Pale purple. May. South Europe. 1818.

ORRIGANUM. Marjoram. (From *oros*, mountain, and *ganos*, joy; referring to the natural places of growth. Nat. ord., *Labiales* [Lamiaceæ]. Linn., 14-*Didymia* 1-*Gymnospermia*.)

- The following are all hardy herbaceous perennials. Seeds, division of the roots, and cuttings; sandy soil. See MARJORAM.
O. Aegyptiacum (Egyptian). 1. Pink. July. Egypt. 1731.
 — *crassifolium* (thick-leaved). Purplish. June. Levant.
 — *dichamaus* (dittany of Crete). 1. Pink. July. Candia. 1561.
 — *heracleoticum* (bastard-winter-sweet). 1. White. August. South Europe. 1640.
 — *hortensis* (garden). Purplish. June. N. Africa. 1573.
 — *maurum* (mastic). 1. Pink. June. Palestine.
 — *nervosum* (large-nerved). Pink. June. Egypt. 1823.
 — *normalis* (normal). 1. Blue. June. Nepaul. 1819.

- O. Onites* (Onites). 1. Whitish. August. Mediterranean. 1759.
 — *Sipyleum* (Mount Sipylus). 1. Pink. August. Levant. 1699.
 — *stoloniferum* (runner-bearing). 1. Pink. June. Pedolia. 1828.
 — *Tournefortii* (Tournefort's). 1. Pink. August. Arnogos. 1788.
 — *vulgaris* (common). 2. Pink. August. Britain.
 — *flore-alba* (white-flowered). 1. White. June. Britain.
 — *humile* (dwarf). 1. Purple. June. Asia. 1818.
 — *prismaticum* (prism-shaped). White. July. Mediterranean.
 — *virens* (green). 1. Purple. June. Portugal.

ORMOSIA. Bead-tree. (From *ormos*, a necklace; referring to the seeds of *O. coccinea*, which are scarlet, with a dark spot, which are strung for necklaces. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 10-*Decandria* 1-*Monogynia*. Allied to *Sophora*.)

Stove evergreen trees, blue-flowered. Cuttings of half-ripened shoots in sand, under a bell-glass, and in bottom-heat, in May; sandy, fibry peat, and a little loam. Winter temp., 45° to 55°; summer, 60° to 85°.

- O. coccinea* (scarlet-seeded). 10. July. Guiana. 1823.
 — *dasyclappa* (thick-fruited). 10. June. W. Ind. 1793.

ORNITHIDIUM. One of the many weeds among air-plants.

ORNITHOGALUM. Star of Bethlehem. (From *ornis*, a bird, and *gala*, milk. Nat. ord., *Lilyworts* [Liliaceæ]. Linn., 6-*Hexandria* 1-*Monogynia*.)

Pretty bulbous plants, white-flowered, where not otherwise specified. Offsets; sandy loam and a little leaf-mould for the hardy kinds; a little peat added for those that require a cold pit in winter. If the latter are planted out in a dry border, the border must be protected from wet and frost during winter, or the bulbs taken up, and kept in drawers or bags where no frost will reach them.

HARDY BULBS.

- O. bulbiferum* (bulb-bearing). $\frac{1}{2}$. April. Russia. 1821.
 — *comosum* (tufted). $\frac{1}{2}$. July. Austria. 1596.
 — *divaricatum* (spreading). 2. July. California. 1841.
 — *escaupum* (stemless). $\frac{1}{2}$. May. Italy. 1824.
 — *frimbriatum* (fringed). $\frac{1}{2}$. February. Crimea. 1820.
 — *margnatum* (white-edged). $\frac{1}{2}$. Greenish-white. March. Asia. 1843.
 — *montanum* (mountain). $\frac{1}{2}$. May. Italy. 1824.
 — *Narbonense* (Narbonne). $\frac{1}{2}$. July. South Europe. 1810.
 — *nutans* (nodding). $\frac{1}{2}$. June. Britain.
 — *pyramidalis* (pyramidal). 2. June. Spain. 1752.
 — *Pyrenaicum* (Pyrenean). 2. Green. June. England.
 — *stachyoides* (stachys-like). $\frac{1}{2}$. Lilac, yellow. May. South Europe. 1771.
 — *umbellatum* (umbelled). 1. May. England.

TENDER BULBS.

- O. aliaecum* (onion-like). $\frac{1}{2}$. September. Chili. 1821.
 — *Arabicum* (Arabian). $\frac{1}{2}$. May. Egypt. 1629.
 — *aurum* (golden). $\frac{1}{2}$. Yellow. June. Cape of Good Hope. 1790.

- O. barbatum* (bearded). 1. June. Cape of Good Hope. 1795.
 — *Be'rgii* (Bergius). White, green. March. 1816.
 — *bisfo'rum* (twin-flowered). 1½. April. Peru. 1832.
 — *biso'lum* (two-leaved). ¾. August. Chili. 1831.
 — *brachy'stachys* (short-spiked). March. Dahuria. 1821.
 — *cauda'tum* (tailed). 3. White, green. May. Cape of Good Hope. 1774.
 — *chloroleu'cum* (greenish-white). 1. July. Valparaiso. 1834.
 — *clita'tum* (hair-fringed). ½. April. Cape of Good Hope. 1819.
 — *coarcta'tum* (compressed-flowered). 1½. White, green. June. Cape of Good Hope. 1804.
 — *conci'nnum* (neat). ¾. May. Portugal. 1797.
 — *co'nicum* (conical). 1. White, green. June. Cape of Good Hope. 1823.
 — *corymbo'sum* (corymbed). 1½. White, green. May. Chili. 1823.
 — *crenula'tum* (scalloped). ½. April. Cape of Good Hope. 1816.
 — *ela'tum* (tall). 3. March. Egypt. 1804.
 — *flavi'ssimum* (yellowest). 1. Yellow. June. Cape of Good Hope. 1804.
 — *fusca'tum* (dull). ½. Grey. June. Cape of Good Hope. 1820.
 — *geminifo'rum* (twin-flowered). 1. Greenish-white. Luna.
 — *hi'spidum* (bristly). ½. June. Cape of Good Hope. 1824.
 — *ixio'i'des* (ixia-like). ½. May. California. 1796.
 — *juncifo'lum* (rush-leaved). ¾. July. Cape of Good Hope. 1794.
 — *la'cteum* (milk-white). 1. June. Cape of Good Hope. 1796.
 — *latifo'lum* (broad-leaved). 1½. June. Egypt. 1629.
 — *longibractea'tum* (long-bracted). ½. May. Cape of Good Hope. 1817.
 — *macula'tum* (spotted). ¾. May. Cape of Good Hope. 1823.
 — *minia'tum* (red-stained). Yellow. June. Cape of Good Hope. 1790.
 — *na'num* (dwarf). ¾. Greenish-white. March. Berbeck. 1843.
 — *ni'ceum* (snowy). ½. May. Cape of Good Hope. 1774.
 — *nota'tum* (brown-marked). July. Cape of Good Hope. 1825.
 — *odora'tum* (sweet-scented). 1½. Pale yellow. May. Cape of Good Hope. 1795.
 — *ova'tum* (egg-shaped). 1. May. Cape of Good Hope. 1824.
 — *pilo'sum* (shaggy). 1. May. Cape of Good Hope. 1826.
 — *polyphy'lum* (many-leaved). ½. June. Cape of Good Hope. 1824.
 — *rupe'stre* (rock). ½. May. Cape of Good Hope. 1795.
 — *secu'ndum* (side-flowering). ¾. August. Cape of Good Hope. 1826.
 — *aqu'i'lia* (squill-like). 3. May. South Europe. 1829.
 — *sua'veolens* (sweet-scented). ½. June. Cape of Good Hope. 1826.
 — *tene'llum* (delicate). ½. June. Cape of Good Hope. 1818.
 — *tenuifo'lum* (fine-leaved). 1. April. Cape of Good Hope. 1819.
 — *thyrso'i'des* (thyrs-like). 1½. Yellow. June. Cape of Good Hope. 1757.
 — *flave'scens* (yellowish). 1½. Yellow. June. Cape of Good Hope. 1800.
 — *tri'gynum* (three-styled). White, green. June. 1825.
 — *unifo'lum* (one-leaved). ¾. Green. June. Gibraltar. 1805.

ORNITHO'PUS. Bird's-foot. (From *ornis*, a bird, and *pous*, a foot; referring to the claw-like seed-pods. Nat. ord. *Leguminosae* Plants [Fabaceæ]. Linn., 17-*Diadelphia* 4-*Decandria*.)

Low-growing, yellow, pea-blossomed, hardy annuals. Seed, sown in the garden-border in March.

- O. du'rum* (hard). ½. July. Spain. 1816.
 — *ebractea'tum* (bracteless). ¾. July. South Europe. 1700.
 — *perpusi'llus-nodo'sus* (very-small-knotted). ½. White, red. May. France.
 — *repa'ndum* (wavy-leaved). ½. July. Barbary. 1805.
 — *scorpio'i'des* (scorpion-like). ½. July. South Europe. 1566.

O'RNUS. Flowering Ash. (From *oreinos*, ancient name of the Ash; applied on account of the resemblance and affinity. Nat. ord., *Olive-worts* [Oleaceæ]. Linn., 2-*Dianthia* 1-*Monogynia*. Allied to *Fraxinus*.)

Hardy, white-flowered, deciduous trees. Seeds, gathered in October, placed in the rot-heap, mixed with earth, turned in winter, and sown in March; budding and grafting on the common Ash. From the juice distilled from some species the manna of commerce is produced.

- O. America'na* (American). 30. May. N. Amer. 1820.
 — *Europa'na* (European). 20. May. Italy. 1730.
 — *floribu'nda* (bundle-flowered). 30. Nepal. 1822.
 — *rotundi'folia* (round-leaved). 16. May. Italy. 1697.
 — *stria'ta* (channelled). 30. April. N. Amer. 1818.

O'ROBUS. Bitter Vetch. (From *oro*, to excite, and *bous*, an ox; nourishing food. Nat. ord., *Leguminosae* Plants [Fabaceæ]. Linn., 17-*Diadelphia* 4-*Decandria*. Allied to *Vicia*.)

Hardy herbaceous perennials, except *saxatilis*. Seeds; division of the plant in spring; sandy, deep loam.

- O. al'bus* (white-flowered). 1. White. April. Austria. 1794.
 — *alpe'stris* (rock). 2. Purple. June. Hungary. 1817.
 — *America'nus* (American). Pale purple. Jamaica. 1731.
 — *angustifo'lus* (narrow-leaved). 1. White. April. Siberia. 1766.
 — *atro-purpu'reus* (dark purple). 1. Purple. May. Algiers. 1826.
 — *aura'n'tius* (orange). 1½. Yellow. June. Iberia. 1818.
 — *cane'scens* (hoary). 1½. White, blue. May. France. 1816.
 — *cocc'i'neus* (scarlet). 1. Scarlet. April. Vera Cruz.
 — *uni'u'gus* (paired). 1. Scarlet. April. N. Amer.
 — *divarica'tus* (spreading). ¾. Purple. June. Pyrenees. 1816.
 — *ere'ctus* (erect). 1. Yellow, red. July.
 — *Fische'ri* (Fischer's). Purple. April. Siberia.
 — *forma'sus* (beautiful). ¾. Purple. June. Caucasus. 1818.
 — *hirsu'tus* (hairy). 1. Red. May. Thrace. 1822.
 — *hu'milis* (humble). ½. Purple. July. Dahuria. 1825.
 — *Jorda'ni* (Jordan's). Blue. June. Lucania. 1830.
 — *la'cteus* (milk-white). 1½. White. April. Caucasus. 1820.

- O. levigatus* (smooth). 1½. Yellow. June. Hungary. 1820.
 — *lathyroides* (lathyrus-like). 2. Blue. June. Siberia. 1758.
 — *laxiflorus* (loose-flowered). 1. Violet. June. Candia. 1820.
 — *longifolius* (long-leaved). Lilac. June. Missouri. 1827.
 — *luteus* (yellow). 1½. Lilac, yellow. June. Siberia. 1759.
 — *multiflorus* (many-flowered). 2. Pale red. July. Italy. 1820.
 — *niger* (black). 3. Purple. June. Britain.
 — *ochroleucus* (yellowish-white). 2. Yellow, white. June. Hungary. 1816.
 — *pallascens* (palish). 1. White. April. Tauria. 1823.
 — *pauciflorus* (few-flowered). 1. Purple. June. 1820.
 — *pisiformis* (pea-formed). 1. Purple. May. South Europe. 1822.
 — *pyrenaicus* (Pyrenean). 2. Purple. May. Pyrenees. 1699.
 — *saxatilis* (rock). 1. Purple. July. France. 1820. Annual.
 — *sessilifolius* (stalkless-leaved). 1. Purple. May. Tauria. 1823.
 — *stipulaceus* (stipuled). 6. Purple. May. N. Amer. 1820. Annual.
 — *sylvaticus* (wood). 2. Crimson, purple. June. Britain.
 — *tenuifolius* (fine-leaved). ½. Purple. June. Europe. 1810.
 — *Tournefortii* (Tournefort's). 1½. Yellow, purple. June. Hungary. 1821.
 — *tuberosus* (tuberous). 1. Purple. June. Britain.
 — *variegatus* (variegated). 1. Purple. July. Italy. 1821.
 — *varius* (various). 1½. Yellow, red. April. Italy. 1759.
 — *Venetianus* (Venetian). 1. Purple. April. Germany.
 — *venosus* (veiny). 1. Blue. June. Siberia. 1820.
 — *vernus* (spring). 1. Purple. March. Europe. 1629.
 — *carneus* (flesh-coloured). 1. Flesh. March.
 — *vicioides* (vetch-like). 1. Yellow. June. Hungary. 1819.

ORTHO'SIPHON. (From *orthos*, straight, and *siphon*, a tube; referring to the tube of the flower. Nat. ord., *Labiales* [*Lamiaceæ*]. Linn., 14-*Didynamia* 1-*Gymnospermia*. Allied to *Ocimum*.)

Division of herbaceous, or cuttings of the young shoots, when growth is commencing; cuttings of half-ripened shoots of the evergreens; sandy loam and fibry peat; common stove and greenhouse treatment.

- O. asperus* (rough). White. May. E. Ind. 1827. Stove herbaceous.
 — *incurvus* (bent-in). 1. Pale scarlet. May. E. Ind. 1839. Stove evergreen.
 — *rubicundus* (ruddy). Purple. June. Nepal. 1826. Greenhouse evergreen.
 — *virgatus* (twiggy). Blue. June. Nepal. 1826. Greenhouse evergreen.

ORTHOSA'NTHUS. (From *orthos*, morning, and *anthos*, a flower; flowers expand early in the day. Nat. ord., *Irids* [*Iridaceæ*]. Linn., 16-*Monadelphia* 3-*Triandria*. Allied to *Sisyrinchium*.)

Greenhouse herbaceous perennial. Seeds, and division of the plant in spring; sandy loam and leaf-mould; a cold pit in winter, to exclude the frost.

- O. multiflorus* (many-flowered). 1. Blue. June. N. Holland. 1820.

OSAGE APPLE. *Maclu'ra*.

OSBE'CKIA. (Named after *P. Osbeck*, a Swedish naturalist. Nat. ord., *Melastomads* [*Melastomaceæ*]. Linn., 8-*Oc-tandria* 1-*Monogynia*. Allied to *Melastoma*.)

Cuttings of side, firm, stubby shoots in sand, under a bell-glass, and in bottom-heat; sandy loam, fibry peat, a little dried cow-dung, and charcoal. Winter temp., 48° to 58°; summer, 60° to 85°.

STOVE DECIDUOUS SHRUBS.

- O. cane'scens* (hoary). 1838.
 — *glomerata* (crowded). 1. Pink. July. Trinidad. 1818.
 — *Nepale'nsis albiflora* (Nepaul-white-flowered). 1½. White. August. Nepaul. 1829.

STOVE EVERGREENS.

- O. angustifolia* (narrow-leaved). 2. Rose. May. Nepaul. 1826.
 — *Chine'nsis* (Chinese). 2. Purple. July. China. 1818.
 — *glomerata albiflora* (crowded-white-flowered). 1½. White. January. Brazil. 1821.
 — *Nepale'nsis* (Nepaul). 1½. Purple. June. Nepaul. 1821.
 — *octandra* (eight-stamened). 1. Rose. April. Ceylon. 1815.
 — *stellata* (starred). 1. Pink. July. Nepaul. 1820.
 — *ternifolia* (three-leafted). 3. Lilac. May. Nepaul. 1825.
 — *Zeyla'nica* (Ceylon). 2. Yellow. August. Ceylon. 1799.

OSIER. *Salix viminalis*.

OSMI'TES. (From *osme*, perfume; smells like camphor. Nat. ord., *Compositæ* [*Asteraceæ*]. Linn., 19-*Syngenesia* 3-*Frustranea*. Allied to *Relbania*.)

Greenhouse, white-flowered evergreens, from the Cape of Good Hope. Cuttings of half-ripened shoots in sand, under a bell-glass, in April or May, and without bottom-heat. Winter temp., 40° to 45°.

- O. bellidistrum* (bellidiastrium). 1. June. 1816.
 — *camphor'na* (camphor-scented). 1½. May. 1794.
 — *dentata* (toothed). 1½. May. 1820.

OSMU'NDA. (The name of a Celtic deity. Nat. ord., *Ferns* [*Polypodiaceæ*]. Linn., 24-*Cryptogamia* 1-*Filices*.)

Hardy brown-spored Ferns, except *Preslia'na*. See **FERNs**.

- O. cinnamo'mea* (cinnamon). 2. June. N. Amer. 1772.
 — *Claytonia'na* (Clayton's). 2. August. N. Amer. 1772.
 — *gracilis* (slender). 1. June. 1827.
 — *humilis* (humble). June. N. Amer. 1823.
 — *interrupta* (interrupted). 2. June. N. Amer.
 — *pulvistris* (marsh). 2½. 1831.
 — *Preslia'na* (Presl's). June. Isle of Luzon. Stove.
 — *regalis* (royal). 2. July. Britain.
 — *spectabilis* (showy). 2. July. N. Amer. 1811.

OSSÆ'A. (Named after *Ossa*, curator of the Havannah Botanic Garden. Nat. ord., *Melastomads* [*Melastomaceæ*]. Linn., 8-*Oc-tandria* 1-*Monogynia*. Allied to *Miconia*.)

Stove evergreen shrub. Cuttings of young, side, stubby shoots, or the points of main ones, when a little firm, in sandy soil, under a bell-glass, and in heat; sandy peat and loam; common plant-stove treatment.

O. purpura'scens (purplish). 3. Purple. March. Jamaica. 1822.

OSTEO'MELES. (From *osteon*, bone, and *melon*, apple; the fruit. Nat. ord., *Apple-worts* [Pomaceæ]. Linn., 12-*Icosandria* 2-*Di-pentagynia*. Allied to *Mespilus*.)

Hardy evergreen tree. For culture, see MEDLAR.
O. ferruginea (rusty). July. 1847.

OSTEOSPERMUM. (From *osteon*, a bone, and *sperma*, a seed. Nat. ord., *Compositæ* [Asteraceæ]. Linn., 19-*Syngenesia* 4-*Necessaria*. Allied to *Calendula*.)

Greenhouse, yellow-flowered evergreens, from the Cape of Good Hope. Cuttings of small, half-ripened shoots in sand, under a bell-glass, in April or May; sandy loam and a little fibry peat. Winter temp., 40° to 45°.

O. caruleum (blue-flowered). 3. Blue. July. 1774.
— *calendula'ceum* (marigold-like). 2. July.
— *corymbosum* (corymbed). 3. August. 1822.
— *tiliofolium* (holly-leaved). 4. July. 1816.
— *incanum* (hoary). 3. August. 1815.
— *moniliiferum* (necklace-bearing). 2. July. 1714.

O'STRYA. Hop Hornbeam. (From *ostryos*, a scale; scaly catkins. Nat. ord., *Mastworts* [Corylaceæ]. Linn., 21-*Monœcia* 9-*Polyandria*. Allied to the Hornbeam.)

Hardy deciduous trees. Seeds, which, if sown in the spring, the season after being gathered in the autumn, and kept in a rot-heap during winter, will make their appearance the year following; layers, cuttings, and grafting on the common Hornbeam; good, deep, moist soil.

O. Virginica (Virginian). 20. April. N. Amer. 1622.
— *vulgaris* (common). 20. May. Italy. 1724.

OSWEGO TEA. *Mona'rdia didyma*.

OSYRIS. Poet's Cassia. (From *ozos*, a branch; referring to the numerous ppliant branches. Nat. ord., *Sandalworts* [Santalaceæ]. Linn., 22-*Diœcia* 3-*Triandria*. Allied to *Santalium*.)

Greenhouse evergreen shrub. Cuttings of ripened shoots under a hand-light in spring; sandy loam; requires the protection of a cold pit in winter, or a conservative wall.

O. alba (white). 3. White. South Europe. 1739.

OTAHEITE CHESTNUT. *Inocarpus edulis*.

OTAHEITE MYRTLE. *Securine'ga nitida*.

OTHO'NNA. Ragwort. (From *othone*, linen; referring to the soft, downy clothing of the leaves. Nat. ord., *Compositæ* [Asteraceæ]. Linn., 19-*Syngenesia* 4-*Necessaria*.)

Greenhouse, yellow-flowered plants, from the Cape of Good Hope, except where otherwise mentioned. Seeds in a mild hotbed, in spring; annuals may be hardened off afterwards; perennials, by division of the plant; tuberous-rooted,

by dividing them; shrubs, by cuttings of half-ripened shoots in sand, under a glass, in May; sandy loam, and a little fibry peat. Winter temp., 40° to 48°.

ANNUAL.

O. tagetes (marigold-leaved). 1. May. 1823.

HERBACEOUS.

O. linifolia (flax-leaved). 2. July. 1824.

— *pinna'ta* (leafleted). 3. May. 1759.

— *pinnatifida* (leaflet-like). 1. July. 1823.

TUBEROUS-ROOTED.

O. bulbosa (bulbous). 2. May. 1774.

— *flicau'tis* (thread-stemmed). 1½. April. 1791.

— *tuberosa* (tuberous). August. 1842.

EVERGREEN SHRUBS.

O. abrotanifolia (southernwood-leaved). 3. May. 1692.

— *arborescens* (tree-like). 2. July. 1723.

— *Athanasia* (Athanasia-like). 3. January. 1795.

— *cheirifolia* (wallflower-leaved). 1½. May. Barbary. 1752.

— *coronopifolia* (buckhorn-leaved). 2. August. 1731.

— *denticulata* (tooth-leaved). 2. June. 1774.

— *digita'ta* (finger-leaved). 1½. July. 1824.

— *heterophylla* (various-leaved). 2. May. 1812.

— *perfolia'ta* (leaf-stem-pierced). 1½. June. 1789.

— *tenuissima* (finest-leaved). 1½. May. 1759.

— *virginea* (virgin-like). 3. October. Africa. 1821.

OTO'PTERA. (From *ous*, an ear, and *pteron*, a wing; referring to an ear-like process on the wing-petals. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 17-*Diadelphina* 4-*Decandria*. Allied to *Dolichos*.)

Greenhouse evergreen climber; cuttings of half-ripened shoots in sand, under a bell-glass; sandy, fibry loam and lumpy peat, with nodules of charcoal intermixed.

O. Burchellii (Burchell's). Purple. May. Cape of Good Hope. 1816.

O'XALIS. Wood Sorrel. (From *oxys*, acid; the acid taste of the leaves. Nat. ord., *Oxalids* [Oxalidaceæ]. Linn., 10-*Decandria* 4-*Pentagynia*.)

Natives of Cape of Good Hope, except where otherwise stated. Hardy annuals, seed in open border, in April, in a shady place; perennials, by division and by seeds; tuberous and bulbous ones, by offsets; the tender ones succeed in a cool temperature in winter, if dry, and frost excluded; shrubby species, by seeds and cuttings in sandy soil, under a bell-glass, and grown in sandy loam and fibry peat; all the bulbous kinds the least tender should be kept dry in winter, and the shrubby have the greenhouse.

HARDY ANNUALS.

O. corniculata (small-horned). 4. Yellow. August. Britain.

— *Dillenii* (Dillenius's). 2. Copper. America. 1798.

— *florida* (florid). 2. Yellow. America. 1798.

— *lavigata* (smooth). ½. Purple. June. 1818.

— *microphylla* (small-leaved). ½. Pale red. N. S. Wales.

— *sensitiva* (sensitive). ½. Yellow. July. China. 1844. Stove.

HARDY HERBACEOUS.

- O. Lyo'nii* (Lyon's). 1. Yellow. August. Amer. 1816.
tri'cta (upright). 1½. Yellow. July. N. Amer. 1658.

HARDY BULBS.

- O. a'lba* (white-flowered). ¾. White. May. America. 1836.
— *America'na* (American). ¼. White. April. N. Amer.
— *viola'cea* (violet-coloured). ¼. Violet. May. N. Amer. 1772.

GREENHOUSE HERBACEOUS.

- O. Cummi'ngii* (Cumming's). ¼. Golden. September. Chili. 1831.
— *di'scolor* (two-coloured). Violet, crimson. July. Mexico. 1844.
— *floribu'nda* (bundle-flowered). 1½. Red. July. S. Amer. 1827.
— *lasia'ndra* (downy-stamened). 1½. Pink. May. Mexico. 1840.
— *Martia'na* (Martin's). Yellow. July. Brazil. 1829. Stove.
— *na'tans* (floating). ¼. White. October. 1795. Aquatic
— *Otto'nis* (Otto's). Yellow. May. Chili. 1840.
— *pala'stris* (marsh). Lilac. May. Brazil. 1828. Stove.
— *pere'mans* (perennial). 2. Yellow. July. N. S. Wales.
— *re'pens* (creeping-stalked). 1. Yellow. May. 1793.
— *ro'sea* (rosy). ¼. Rose. March. Chili. 1826.
— *rubro-ci'ncta* (red-edged). 1. Yellow. September. Guatimala. 1841.
— *Simsii* (Sims's). ¾. Crimson. April. Chili. 1823.
— *u'r'bica* (city). White. August. Brazil. 1828.

GREENHOUSE BULBS.

- O. ambigua* (ambiguous). ¼. White. October. 1790.
— *arcua'ta* (bowed). ¼. Violet. September. 1795.
— *asini'na* (ass's-eared). ¼. Yellow. November. 1792.
— *bi'fida* (cloven-leaved). ¾. Violet. September. 1791.
— *bipuncta'ta* (two-spotted). ¼. Lilac. May. Brazil. 1825.
— *Bowiei* (Bowie's). ¼. Crimson. October. 1823.
— *Brasili'ensis* (Brazilian). ¼. Rose. October. Brazil. 1829.
— *Burma'nni* (Burmann's). ¼. Purple. June. 1820.
— *cane'scens* (hoary). 1. Purple. March. 1821.
— *capri'na* (goat's-foot). ¼. Flesh. August. 1757.
— *carno'sa* (fleshy). ¼. Yellow. October. Chili. 1826.
— *ce'rnu'a* (drooping). ¼. Yellow. March. 1757.
— *cilia'ris* (hair-fringed-leaved). ¼. Purple. October. 1793.
— *Commerso'nii* (Commerçon's). ¼. Yellow. October. Brazil.
— *compressa* (compressed). ¼. Yellow. December. 1794.
— *convexula* (small-convex). ¾. Pink. June. 1789.
— *crona'ta* (scalloped-petaled). 3. Yellow. September. Lima. 1829.
— *cri'epa* (curled). ¼. White. October. 1793.
— *cruenta'ta* (bloodied). ¼. Purple. October. 1826.
— *cune'a'ta* (wedge-petaled). ¼. Yellow, white. July. 1822.
— *cuneifo'lia* (wedge-leaved). ¼. White. April. 1793.

- O. cu'pren* (copper-coloured). ¼. Copper. May. 1822.
— *Darwallia'na* (Darwall's). ¼. Pale crimson. July.
— *denta'ta* (toothed). ¼. Flesh. October. 1793.
— *De'ppei* (Deppe's). ¼. Red. March. Mexico. 1827.
— *di'sticha* (two-rowed). ¼. Pale yellow. May. 1818.
— *dive'rgens* (wide-spaced). ¾. White. July. Mexico. 1829.
— *elonga'ta* (elongated). ¾. White. June. 1791.
— — *ame'na* (fine-red). ¾. Copper. September. 1810.
— *fabofo'lia* (bean-leaved). ¼. Red. October. 1794.
— *ja'llas* (deceptive). ¾. Yellow. September. 1825.
— *ferrugina'ta* (rusty). ¾. Yellow. June. 1820.
— *filica'ulis* (thread-stemmed). ¼. Violet. September. 1815.
— *filifo'lia* (thread-leaved). ¼. Pink. June. 1822.
— *flabellifo'lia* (fan-leaved). ¼. Yellow, red. August. 1789.
— *fla'ccida* (feeble). ¼. White, red. September. 1812.
— *fla'ta* (yellow). ¾. Yellow. March. 1775.
— — *flu're-pl'e'no* (double-flowered). ¼. Yellow. March.
— *ful'gida* (fulgid). ¼. Crimson. October. 1820.
— *furcata* (fork-leaved). ¾. Red. September. 1823.
— *fusca'ta* (brown-spotted). ¼. Yellow. May. 1795.
— *genicula'ta* (kneel). ¼. Yellow. October.
— *glab'ra* (smooth). ¾. Purple. May. 1795.
— *glan'dulo'sa* (glanded). ¾. White. October. 1822.
— *hi'rta* (hairy-stalked). ¾. Lilac. October. 1787.
— *hirtella* (small-hairy). ¼. Red. March. 1823.
— *incarna'ta* (flesh). ¼. Flesh. May. 1799.
— *laburnifo'lia* (laburnum-leaved). ¼. Yellow. September. 1793.
— *lana'ta* (woolly-leaved). ¼. White. October. 1791.
— *lanceo'fo'lia* (spear-head-leaved). ¼. Yellow. October. 1795.
— *lasiope'tala* (downy-petaled). ¼. Pink. July. Buenos Ayres. 1841.
— *laterifo'ra* (lateral-flowered). ¼. Purple. March. 1824.
— *la'sula* (loose). ¼. White. November. 1820.
— *le'pida* (pretty). ¼. White. May. 1823.
— *lepori'na* (hare's-eared). ¼. White. October. 1795.
— *linea'ris* (narrow-leaved). ¼. Violet. October. 1795.
— *livida* (livid). ¼. Flesh. October. 1793.
— *loba'ta* (lobed). ¼. Yellow. October. 1823.
— *lupinifo'lia* (lupine-leaved). ¼. Yellow. September. 1791.
— *lute'ola* (yellowish). ¾. Yellow. May. 1823.
— *macrophy'lla* (large-leaved). ¾. Yellow. June. 1820.
— *macro'stylis* (large-styled). ¼. Purple. October. 1793.
— *margin'a'ta* (green-edged). ¼. White. November. 1812.
— *Mauritia'na* (Mauritian). ¾. Palerose. September. Isle of France. 1810.
— *minia'ta* (vermilion). ¼. Vermilion. May. 1819.
— *monophy'lla* (one-leaved). ¾. Yellow. October. 1774.
— *multi'fo'ra* (many-flowered). ¼. Lilac. February. 1789.

- O. obtusa* (blunt-leaved). ½. White. September. 1812.
 — *papilionacea* (butterfly). ½. Variegated. Brazil. 1819.
 — *pectinata* (comb-leaved). ½. Yellow. October. 1790.
 — *pentaphylla* (five-leaved). ½. Pink. June. 1800.
 — *Pio'llæ* (Piotta's). ½. Orange. June. 1816.
 — *polyphylla* (many-leaved). ½. Pale purple. May. 1791.
 — *pulchella* (pretty). ½. White. October. 1795.
 — *punctata* (dotted). ½. Purple. May.
 — *purpura'ta* (purplish). ½. Pale purple. October. 1822.
 — *purpurea* (purple). ½. Purple. October. 1812.
 — *reclinata* (reclining). ½. Pink. October. 1795.
 — *reptans* (creeping-rooted). ½. Flesh. November. 1795.
 — *rigidula* (stiffish). ½. White. September. 1822.
 — *rosa'cea* (rosyish). ½. Pink. October. 1793.
 — *rostrata* (beaked). ½. Purple, violet. October. 1795.
 — *rubella* (branching-small-red). ½. Pink. October. 1791.
 — *rubro-flava* (red and yellow). ½. Red, yellow. June. 1823.
 — *sanguinea* (bloody-leaved). ½. Yellow. November. 1795.
 — *secundata* (side-flowering). ½. Lilac. October. 1790.
 — *sericea* (silky). ½. Yellow. May. 1794.
 — *speciosa* (showy). ½. Purple. October. 1690.
 — *strumosa* (swollen-styled). ½. White. December. 1821.
 — *sulphurea* (sulphur-coloured). ½. Pale yellow. October. 1795.
 — *syne'tris* (wood). White. February.
 — *tene'lla* (delicate). ½. Lilac. May. 1793.
 — *te'nera* (tender). ½. Yellow. May. Brazil. 1826.
 — *tetraphylla* (four-leaved). ½. Purple. June. Mexico. 1823.
 — *tenuifolia* (fine-leaved). ½. White, red. October. 1790.
 — *tricolor* (three-coloured). ½. White, red. November. 1794.
 — *tubiflora* (tube-flowered). 1. Pink. November. 1790.
 — *undulata* (wave-leaved). ½. Lilac. October. 1795.
 — *variabilis* (variable). ½. White, red. November. 1795.
 — — *grandiflora* (large-flowered). ½. White. November. 1790.
 — — *Simsii* (Sims's). ½. White. November. 1790.
 — *venosa* (veiny). ½. Violet, yellow. October. 1823.
 — *versicolor* (various-coloured). ½. Crimson. February. 1774.
- GREENHOUSE AND STOVE EVERGREENS.
O. Barrelieri (Barrelier's). 1½. Pale red. September. Caraccas. 1824. Stove.
 — *Chinensis* (Chinese). ½. Yellow. August. China.
 — *fruticosa* (shrubby). 1. Yellow. December. Rio Janeiro. 1817. Stove.
 — *Plumieri* (Plumier's). 2. Yellow. S. Amer. 1823. Stove.

O'XALIS DE'PPEI CULTURE.—Plant bulbs of this in pots at the beginning of March, and shelter in a cold pit or greenhouse. When all fear of frost is passed, plant them in a light soil, and in a

southern aspect, about twelve inches apart each way; or the bulbs may be kept out of the ground altogether until the middle of April, and then be planted at once in the open soil. It should be trenched, and a little manure turned in with the bottom spit, as for other tap-rooted crops. The scaly bulbs, from which it is propagated, grow in a cluster round the crown of the root. The only cultivation required is to keep the crop free from weeds, and to water plentifully in dry weather; otherwise, if the roots are allowed to become dry, they split upon the occurrence of moist weather. Protect from early frosts, in October or November, by a mat covering.

About ten roots are enough for a dish. They are very useful as a vegetable from early in October to the end of December. An inferior kind has often been substituted for it, viz., the *O'xalis Jacquiniana*; but this is distinguished by having pink flowers. In Belgium, the leaves, being gratefully acid, are used for the same purposes as sorrel, and the flowers are mixed with other salad-herbs.

As it is not a very common vegetable, it may be useful to state, as an improved mode of cooking, that after peeling the tubers, and cleaning out their hollow centres, they must be well boiled in rich stock (gravy), skimming off the fat, and then be served up hot, with a sauce made of a little butter heated until brown, with a spoonful of flour, and a little of the stock.

OX-EYE. *Bupthalamum*.

OX-EYE DAISY. *Chrysanthemum leucanthemum*.

OX-LIP. *Primula elatior*.

OXYANTHUS. (From *oxys*, sharp, and *anthos*, a flower; referring to the sharp-toothed calyx and corolla. Nat. ord., *Cinchonads* [*Cinchonaceæ*]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Gardenia*.)

Stove, white-flowered, evergreen shrubs, from Sierra Leone. Cuttings of young shoots, a little firm, in sand, under a bell-glass, in bottom-heat, in May; sandy loam, fibry peat, and a little dried cow-dung. Winter temp., 45° to 55°; summer, 60° to 85°.

O. hirsutus (hairy). 2. July. 1812.

— *speciosus* (showy). 3. July. 1789.

— *tubiflorus* (tube-flowered). 3. July.

— *versicolor* (various-coloured). July. Cuba. 1839.

OXYBAPHUS. Umbrellawort. (From *oxys*, acid, and *baphe*, dyer's colour; referring to the coloured juice of the roots.

Nat. ord., *Nyctagos* [Nyctaginacæ]. Linn., 3-*Triandria* 1-*Monogynia*. Allied to the Marvel of Peru.)

All purple-flowered, except where otherwise stated. Seeds in May, in the open border, but better in mild hotbed, in March, and planted out in the end of April; also, by division of the plant in spring; sandy loam; they all require dry places, and protection from severe frost in winter.

- O. aggregatus* (aggregate). 1. Pink. New Spain. 1811.
- *angustifolius* (narrow-leaved). 1. August. Louisiana. 1812.
- *Cervantesii* (Cervantes'). 2. June. Mexico. 1823.
- *Chilensis* (Chilian). 1. Lilac. September. Chili. 1832.
- *decumbens* (lying-down). 2. August. Missouri. 1818.
- *expansus* (expanded). 2. July. Peru. 1819.
- *glabrifolius* (smooth-leaved). 3. July. New Spain. 1811.
- *hirsutus* (hairy). 1. August. Louisiana. 1812.
- *nyctagineus* (nocturnal). 1. August. Missouri. 1823.
- *ovatus* (egg-leaved). 2. August. Peru. 1820.
- *pilosus* (shaggy). 1. August. Missouri. 1812.
- *viscosus* (clammy). 6. July. Peru. 1793.

OXYCOCCUS. Cranberry. (From *oxys*, acid, and *kokkos*, a berry. Nat. ord., *Cranberries* [Vacciniacæ]. Linn., 8-*Octandria* 1-*Monogynia*.)

Hardy, pink-flowered evergreens. Seeds, but generally by dividing the plants, by layering the shoots, by merely placing sandy peat around them, and by cutting off the points of shoots, and inserting them in sandy peat, under a hand-light, in summer. Marshy, peaty soil, such as a bed surrounded with water. The Cranberry, however, has been grown successfully in a bed on a north border, without any water round it, and the produce was good and plentiful. *Macrocarpus* produces the largest fruit. See AMERICAN CRANBERRY.

- O. erectus* (upright). May. N. Amer. 1806.
- *macrocarpus* (large-fruited). 3. May. N. Amer. 1760.
- — *variegatus* (variegated-leaved). 3. May.
- *palustris* (marsh). 3. May. Britain.

OXYGONIUM. (From *oxys*, sharp, and *gonu*, an angle; referring to the divisions of the leaf, or frond. Nat. ord., *Ferns* [Polypodiaceæ]. Linn., 24-*Cryptogamia* 1-*Filices*.)

Stove, brown-spored Ferns, from the East Indies. See FERNS.

- O. alismæfolium* (alisma-leaved). April.
- *elegans* (elegant). June. 1842.
- *ovatum* (egg-shaped). May. 1842.
- *vittæforme* (band-like). June. 1840.

OXYLOBIUM. (From *oxys*, sharp, and *lobus*, a pod; the seed-pods ending in a sharp point. Nat. ord., *Leguminous Plants* [Fabacæ]. Linn., 10-*Decandria* 1-*Monogynia*. Allied to *Podolobium*.)

Greenhouse, yellow-flowered, evergreen shrubs, from New Holland. Seeds sown in a mild hotbed in April, after being soaked in warm water; cuttings of young shoots, not too firm, in sand, under

a bell-glass, in April or May; sandy peat, a few bits of fibry loam, a greater quantity of charcoal, broken crocks, &c., and abundant drainage. Winter temp., 40° to 48°.

- O. arborescens* (tree-like). 6. May. 1805.
- *capitatum* (round-headed).
- *cordifolium* (heart-leaved). 3. June. 1807.
- *dilatatum* (spread). 1840.
- *ellipticum* (oval-leaved). 3. July. 1805.
- *ferrugineum* (rusty). 2. May. 1820.
- *Hugelii* (Baron Hugel's). 1845.
- *obovatum* (reversed-egg-shaped). 2. March. 1840.
- *obtusifolium* (blunt-leaved). 2. Scarlet. May. 1824.
- *parviflorum* (small-flowered). 1840.
- *Pultenæ* (Pulteney's). 2. Dark orange. March. 1824.
- *retusum* (jagged-leaved). 2. Orange. May. 1823.
- *spinosum* (spiny). 2. May. 1825.

OXYPE'TALUM. (From *oxys*, sharp, and *petalon*, a petal; petals sharp-pointed. Nat. ord., *Asclepiads* [Asclepiadacæ]. Linn., 5-*Pentandria* 2-*Digynia*. Allied to *Asclepias*.)

Stove evergreen climbers, from Brazil. Cuttings in sand, under a bell-glass, in bottom-heat; sandy loam and fibry peat. Winter temp., 50° to 60°; summer, 60° to 85°.

- O. appendiculatum* (appendaged). 6. Yellow. 1823.
- *Banksii* (Banks's). Cream. June. 1826.
- *solanoides* (solanum-like). 3. Purplish-scarlet. 1847.

OXYRA'MPHIS. (From *oxys*, sharp, and *rhamphos*, a beak; shape of the seed-pod. Nat. ord., *Leguminous Plants* [Fabacæ]. Linn., 17-*Diadelphia* 4-*Decandria*. Allied to *Desmodium*.)

Greenhouse evergreen shrub. Cuttings of young shoots in sand, under a bell-glass; and seeds sown in spring; sandy, fibry loam, and a little peat and leaf-mould. Winter temp., 40° to 50°.

- O. macrostyla* (long-styled). 4. Purple, crimson. October. Saharanpoor. 1837.

OXYSPORA. (From *oxys*, sharp, and *spora*, a seed, which is here awned at both ends. Nat. ord., *Melastomads* [Melastomacæ]. Linn., 8-*Octandria* 1-*Monogynia*. Allied to *Rhexia*.)

Stove evergreen shrub. Cuttings of young shoots in sandy soil, under a glass, in bottom-heat, in April; sandy peat, fibry loam, and nodules of charcoal. Winter temp., 50° to 60°; summer, 60° to 85°.

- O. paniculata* (panicled). 3. Red. June. Nepaul. 1826.

OXYSTELMA. (From *oxys*, sharp, and *stelma*, a crown; referring to the acute little leaves accompanying the flower-head, or crown. Nat. ord., *Asclepiads* [Asclepiadacæ]. Linn., 5-*Pentandria* 2-*Digynia*. Allied to *Eustegia*.)

Stove evergreen climber. Cuttings of half-ripened shoots in sand, under a bell-glass, and in

bottom-heat, in May; sandy peat and fibry loam. Winter temp., 50° to 60°; summer, 60° to 85°.

O. esculentum (edible). 4. Yellow. E. Ind. 1816.

OXYTROPIS. (From *oxys*, sharp, and *tropis*, a keel; the keel-petal ends in a sharp point. Nat. ord., *Leguminosæ* [Fabaceæ]. Linn., 17-*Diadelphia* 4-*Decandria*. Allied to *Astragalus*.)

Hardy herbaceous perennials, from Siberia, except where otherwise stated. Chiefly by seeds, sown where the plants are intended to remain, as they do not transplant well; though, also, by dividing the plants in spring, and by cuttings of young shoots under a hand-light, in a shady place, in summer; dry, sandy loam.

O. ambigua (ambiguous). 3. Purple. June. 1817.

— *argentea* (silvery). Pale. June. 1827.

— *argyrophylla* (silvery-leaved). Purple. 1831.

— *brevirostris* (short-beaked). 3. Blue. August. 1802.

— *caerulea* (blue). Blue. June. 1827.

— *campestris* (field). 3. Pale yellow. June. Scotland.

— *caudicans* (whitish). Pale. June. 1827.

— *cyanea* (azure. Caucasian). 3. Blue. July. Caucasus. 1818.

— *dealbata* (whited). 3. Purple. July. Caucasus. 1803.

— *depressa* (bent-down). 3. Purple. June. 1800.

— *dichoptera* (doubly-winged). 3. Blue. June. 1815.

— *Fischeri* (Fischer's). 3. Blue. July. Altai. 1817.

— *floribunda* (bundle-flowered). Purple. May. 1827.

— *foetida* (foetid). 3. Pale yellow. July. Switzerland. 1819.

— *glabra* (smooth). 3. Purple. July. Dahuria. 1823.

— *grandiflora* (large-flowered). 3. Red. June. 1820.

— *leptoptera* (narrow-winged). 3. Blue. June. 1818.

— *Lamberti* (Lambert's). 1. Purple. August. Missouri. 1811.

— *leptophylla* (fine-leaved). 3. Red. July. 1818.

— *longicaulis* (long-pointed). Purple. June. 1827.

— *longirostris* (long-beaked). 3. Purple. 1820.

— *microphylla* (small-leaved). 3. Pale yellow. July. 1819.

— *montana* (mountain). 3. Purple, yellow. Austria. 1881.

— *myriophylla* (myriad-leaved). 3. Purple, white. July. 1818.

— *oxyphylla* (sharp-leaved). 3. Purple. July. 1816.

— *Pallasii* (Pallas's). 3. Pale yellow. July. 1818.

— *pilosus* (long-haired). 3. Pale yellow. July. 1732.

— *prostrata* (prostrate). 3. Blue, white. July. 1820.

— *setosus* (bristly). Purple. June. 1828.

— *Songarica* (Songarian). 3. Violet. June. Altai. 1824.

— *sulphurea* (sulphury). 3. Cream. July. 1820.

— *syriaca* (wood). Purple. May. 1820.

— *tendula* (tender). Blue. June. 1828.

— *uncata* (hooked). 3. White. July. Aleppo. 1768.

— *Uralensis* (Uralian). 3. Purple. July. 1800.

— *verticillaris* (whorl-leaved). 3. Blue, white. July. 1819.

— *viscosa* (clammy). White. July. Switzerland. 1817.

OXYURA. A synonyme of a low, yellow-flowering, composite, hardy annual, from California, first named by Endlicher *Tollatia*. Sow in April in common soil.

OYEDEA. (From the Peruvian name.

Nat. ord., *Compositæ* [Asteraceæ]. Linn., 19-*Syngenesia Frustranea*.)

Greenhouse evergreen shrub; same culture as for *Buphthalmium*.

G. buphthalmoides (ox-eye-like). Yellow. September. Peru. 1848.

OYSTER-PLANT. *Pulmonaria maritima*.

OZOTHAMNUS. (From *ozos*, a branch, and *thamnos*, a shrub. Nat. ord., *Compositæ* [Asteraceæ]. Linn., 19-*Syngenesia* 1-*Æqualis*. Allied to *Helichrysum*.)

Greenhouse, yellow-flowered evergreens, from Van Diemen's Land. Cuttings of young shoots in sand, with a little peat in it, under a bell-glass, in spring or summer; loam and peat. Require the greenhouse in winter.

O. cinereus (grey). 1. July. 1820.

— *ferrugineus* (rusty). 1. July. 1822.

— *rosmarinifolius* (rosemary-leaved). 1. July. 1822.

P.

PACHYPHYLLUM. (From *pachys*, thick, and *phyllon*, a leaf. Nat. ord., *Orchidæ* [Orchidaceæ]. Linn., 20-*Gynandria* 1-*Monandria*. Allied to *Brassia* and *Maxillaria*.)

Cuttings of the young shoots any time during spring and summer, drying them at the base, and inserting them in sandy loam; sandy loam, a little brick-rubbish, and dried cow-dung; little water and plenty of light are required in winter. See *ORCHIDS*.

P. procumbens (lying-down). Green, blue. May. Mexico. 1836.

PACHYPYDIUM. (From *pachys*, thick, and *podion*, a foot; referring to the stalks of the flowers. Nat. ord., *Dogbanes* [Apocynaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Nerium*.)

Greenhouse evergreens, from the Cape of Good Hope, with white and red flowers. Cuttings of young shoots in spring, base dried before inserting in dryish, sandy soil; sandy loam, a little brick-rubbish and peat, but little water in winter. Winter temp., 40° to 45°. Propagated also by a division of the fleshy, tuber-like roots.

P. succulentum (succulent). 1. May. 1823.

— *tuberosum* (tuberous). 1. August. 1813.

PACHYSAINDRA. (From *pachys*, thick, and *aner*, a stamen. Nat. ord., *Spurge-worts* [Euphorbiaceæ]. Linn., 21-*Monocia* 4-*Tetrandria*. Allied to *Buxus*.)

Division and suckers; common, sandy loam. The stove under-shrub, by cuttings in a little heat, but otherwise requiring no particular treatment. The herbaceous, by division in spring; sandy loam and peat.

P. coriacea (leathery-leaved). 4. White. June. Nepaul. 1822. Stove evergreen.

— *procumbens* (trailing). 3. White. April. N. Amer. 1800. Hardy herbaceous.

PÆDERIA. (From *pæderos*, opal; referring to its transparent berries. Nat.

ord., *Cinchonads* [Cinchonacæ]. Linn., 5-Pentandria 1-Monogynia.)

Stove evergreen shrub. Cuttings in sand, in summer, in a little bottom-heat, under a glass; sandy loam and leaf-mould. Winter temp., 48° to 55°; summer, 60° to 80°.

P. fa'tida (stinking). 6. Purple. China. 1806.

PÆO'NIA. Pæony. (Named after Pæon, a physician, who first used it medicinally. Nat. ord., *Crowfoots* [Ranunculacæ]. Linn., 13-Polyandria 2-Digynia.)

Seeds for raising varieties, sown in September, in a cold pit, will appear some the first, and others the second, spring. Herbaceous kinds, by division of the roots. Tree, or Moutan, by division; by grafting on the herbaceous roots; by cuttings of the young shoots in spring, under a glass, and in a little heat; by layers and suckers; by layering young shoots, after ringing round each bud, so that each bud forms a plant; deep, good loam. The Moutans require a little protection in spring; do well for forcing, and for the borders of large, cool conservatories, where the temperature is not kept high in winter.

HARDY SHRUBS.

- P. Mou'tan* (Chinese-tree). 3. Purple. May. China. 1789.
- *al'bida-ple'na* (double-white). 2. White. May. China.
- *Anne'slei* (Annesley's). 3. Pink. May. China.
- *a'tro-purpu'rea* (dark-purple-flowered). 4. Purple. April. China. 1846.
- *Bank'sii* (Banks's). 3. Purple. May. China. 1794.
- *ca'rnea-ple'na* (double-flesh-coloured). 2. Flesh. May. China.
- *globo'sa* (globular-flowered). 3. White, purple. April. Shanghai. 1845.
- *lila'cina* (lilac-coloured). 3. Lilac. April. China. 1845.
- *Hu'mei* (Sir Abercrombie Hume's). 2. Purple. May. China. 1817.
- *papa'vera'cea* (poppy-like). 3. White. May. China. 1789.
- *parvifl'o'ra* (small-flowered). 3. Pale rose. April. Shanghai. 1845.
- *pi'cta* (painted). 3. Pale and deep-rose-striped. April. Canton. 1845.
- *Rawe'sii* (Rawes's). 2. Pale pink. May. China. 1820.
- *ro'sea* (rosy). 3. Pink. May. China.
- *ro'sea-ple'na* (double-rose). 2. Red. May. China. 1804.
- *ro'sea-se'mi-ple'na* (semi-double-rose). 2. Red. May. China. 1794.
- *salmo'nea* (salmon-coloured). 3. Pale salmon. April. China. 1846.
- *specio'sa* (showy). 2. Pink. May. China. 1825.

HARDY HERBACEOUS.

- P. albifl'o'ra* (white-flowered). 2. White. May. Siberia. 1548.
- *ca'ndida* (white). 2. Flesh. May. Siberia.
- *fe'sta* (pleasant). 2. White, pink. June.
- *fra'grans* (fragrant). 2. Red. May. China. 1805.
- *Hu'mei* (Hume's double-crimson). 2. Red. May. China. 1808.
- *Potts'sii* (Potts's). 3. Crimson. June. China. 1822.
- *Reeve'sii* (Reeves's-double). 2. Pink. June. China. 1822.

- P. albifl'o'ra rubescens* (ruddy). 2. Pink. May. Siberia.
- *Sib'rica* (Siberian). 2. White. May. Siberia.
- *Tata'rica* (Tartarian). 2. Flesh. May. Siberia.
- *unifl'o'ra* (single-flowered). 2. Pink. May. Siberia.
- *vesta'lis* (virgin). 2. White. May. Siberia.
- *Whitle'ji* (Whitley's double-white). 2. Blush. May. China. 1808.
- *ano'mala* (anomalous). 1½. Crimson. May. Siberia. 1788.
- *ariet'i'na* (ram). 2. Purple. Levant.
- *Anders'o'nii* (Anderson's). Rose. June.
- *Ozonie'nsis* (Oxford). 2. Pale blush. June.
- *Brownii* (Brown's). Red. May. N. Amer. 1826.
- *corall'i'na* (coralline). 3. Crimson. May. England.
- *Co'r'sica* (Corsican). Purple. June. Corsica.
- *Cret'i'ca* (Crete). 2. White. May. Crete.
- *de'cora* (comely). 2. Purple. May. Turkey.
- *ela'tior* (taller). 2. Purple. May. Crimea.
- *Palla'sii* (Pallas's). 2. Purple. May. Crimea.
- *hu'milis* (dwarf). 2. Purple. May. Spain. 1633.
- *hy'brida* (hybrid). 2. Red. May. Siberia.
- *loba'ta* (lobed). 2. Purple. May. Spain. 1821.
- *mo'llis* (soft). 1½. Purple. May. Siberia.
- *offici'na'lis* (shop). 3. Red. May. Europe. 1548.
- *al'bicans* (whitening). 3. White. May.
- *anemoni'fl'o'ra* (anemone-flowered). 3. Pink. May. 1830.
- *Baxter'i* (Baxter's). 3. Crimson. Oxford.
- *bla'nda* (bland). 3. White. May.
- *cane'scens* (hoary). 3. White. May.
- *multi'petala* (many-petaled). 3. Crimson. May.
- *ro'sea* (rosy). 3. Red. May.
- *ru'bra* (double-red). 3. Red. May.
- *variega'ta* (variegated-leaved). 3. Crimson. June.
- *parado'xa* (paradoxical). 2. Purple. May. Levant.
- *compac'ta* (compact). 2. Purple. May.
- *sinbri'a'ta* (double-fringed). 2. Purple. May.
- *Grevi'llii* (Greville's). 2. Purple. May.
- *peregr'i'na* (straggling). 2. Dark purple. May.
- *pu'bens* (downy). 2. Red. May.
- *Reevesi'na* (Reeves's). 3. Crimson. May. China.
- *Russ'i* (Russ's). 2. Crimson. May. Sicily.
- *simplici'fl'o'ra* (simple-flowered). Red. May. Levant.
- *temu'fl'o'lia* (fine-leaved). 1½. Red. May. Siberia. 1765.
- *flo're-ple'no* (double-flowered). 1½. Red. May. Russia. 1831.
- *latifo'lia* (broad-leaved). 2. Crimson. June.
- *triterna'ta* (thrice-three-leafted). 3. Purple. May. Siberia. 1790.
- *villo'sa* (shaggy). 2. Red. May. South Europe. 1816.
- *Witmanni'na* (Witmann's). 2. Greenish-yellow. May. Abcharia. 1842.

PAINTED CUP. *Castille'ja*.

PAINTED GRASS. *Aru'ndo*.

PALAF'O'XIA. (Named after *Palafox*, a Spanish general. Nat. ord., *Compositæ* [Asteracæ]. Linn., 19-Syngenesia 1-Æqualis. Allied to *Stevia*.)

Herbaceous perennials, with white flowers. Seeds, divisions, and cuttings of the young shoots in spring; sandy loam. A cool greenhouse or cold pit in winter for *linea'ris*.

- P. fastigia'ta* (tapering). August. N. Amer. 1823. Hardy.
 — *linearis* (narrow-leaved). 2. June. Mexico. 1821. Greenhouse.

PALE-BRINDLED BEAUTY MOTH. *Geometra*.

PALICOU'REA. (Named after *Le Palicour*, of Guiana. Nat. ord., *Cinchonads* [*Cinchonaceæ*]. Linn., 5-Pentandria 1-Monogynia. Allied to *Psycotria*.)

Some of the species are used for killing rats and mice in Brazil. Stove evergreen shrubs. Cuttings in spring, in sand, under a glass, in a gentle hotbed; sandy loam and peat.

- P. apica'ta* (crowned-fruited). 4. Yellow. July. Caraccas. 1824.
 — *cro'cea* (saffron-coloured). 4. Orange. July. W. Ind. 1823.
 — *pave'tta* (pavetta-like). 2. White. August. W. Ind. 1828.
 — *ri'gida* (stiff). 3. Yellow. August. Caraccas. 1820.

PALU'RUS. Christ's Thorn. (Name of a plant used by Dioscorides. Nat. ord., *Rhamnads* [*Rhamnaceæ*]. Linn., 5-Pentandria 1-Monogynia. Allied to *Zizyphus*.)

Hardy deciduous shrubs, with greenish-yellow flowers. Suckers, which come freely; layers, and cuttings, and seeds. *Virga'tus* is an elegant shrub. The other, from its abundance in Judea, is supposed to be the plant from which our Saviour's crown of thorns was made; common garden-soil.

- P. aculea'tus* (sharp-thorned). 4. June. South Europe. 1896.
 — *virga'tus* (twiggy). 6. August. Nepaul. 1817.

PALMA CHRISTI. *Ri'cinus*.

PALM OIL. *Ela'eis*.

PANÆ'TIA FU'LVA. A very pretty yellow-flowered annual, which we believe has never been introduced, described from dry specimens by Dr. Lindley, in his pamphlet on Swan River Plants. Seeds in moderate hotbed, in March, planted out in May; sandy, rich soil.

PA'NEX. (From *pan*, all, and *akos*, remedy; referring to the stimulant drug, Ginseng, to which miraculous virtue is ascribed by the Chinese. Nat. ord., *Ivy-worts* [*Araliaceæ*]. Linn., 23-Polygamia 2-Diœcia.)

Cuttings of young shoots under a hand-light, in spring and summer; sandy loam and fibry peat. Of all the species the following are most worth notice:—

- P. conchifo'lum* (shell-leaved). 10. Yellow. Guiana. 1820. Stove evergreen.
 — *ho'rridum* (horrid). White. N. Amer. 1829. Hardy deciduous.
 — *quinquefo'lum* (*Ginseng*. Five-leaved). 1½. Light yellow. June. N. Amer. 1740. Hardy herbaceous.

PANCRAT'IIUM. (From *pan*, all, and *kratys*, potent; supposed medicinal qualities. Nat. ord., *Amaryllids* [*Amarylli-*

daceæ]. Linn., 6-Hexandria 1-Monogynia. Allied to *Hymenocallis*.)

Handsome bulbs, and white-flowered, except where otherwise mentioned. Seeds for new varieties, as well as for perpetuating the older; chiefly by offset-bulbs; sandy loam, fibry peat, and rotten cow-dung. Temp. for stove kinds, winter, 50°; summer, 60° to 90°. Even the hardy require a little protection in severe weather.

HARDY.

- P. Carolina'num* (Carolina). 2. June. Carolina. 1759.
 — *Illy'ricum* (Illyrian). 1½. May. South Europe. 1615.
 — *maritimum* (sea). 2. June. South Europe. 1579.
 — *rota'tum* (wheel-crowned). 1. August. Carolina. 1803.

STOVE.

- P. acutifo'lum* (sharp-leaved). 2. June. Mexico. 1824.
 — *America'num* (American). 2. June. Jamaica. 1820.
 — *amœ'num* (handsome). 2. June. Guiana. 1790.
 — *angustum* (narrow-leaved). 1½. June.
 — *bifo'rum* (two-flowered). 1. June. E. Ind. 1820.
 — *Canarie'nse* (Canary). 1½. June. Canaries. 1815.
 — *Caribœ'um* (Caribean). 1½. June. W. Ind. 1730.
 — *crassifo'lum* (thick-leaved). 1½. June. S. Amer.
 — *declina'tum* (leaning). 2. June. W. Ind. 1825.
 — *d'stichum* (two-ranked). 1½. June. S. Amer.
 — *expa'nsum* (expanded). 2. June. W. Ind. 1820.
 — *fra'grans* (fragrant). 1. May. W. Ind. 1819.
 — *Guianae'nse* (Guiana). 2. November. Guiana. 1815.
 — *hu'mile* (humble). Yellow.
 — *litora'le* (sea-side). 2. June. S. Amer. 1758.
 — *longifo'lum* (long-flowered). 2. June. E. Ind. 1810.
 — *Mexica'num* (Mexican). 1. August. Mexico. 1732.
 — *ova'tum* (egg-leaved). 1. June. W. Ind.
 — *plica'tum* (plaited). July. Macao. 1827.
 — *specio'sum* (showy). 1½. July. W. Ind. 1759.
 — *undula'tum* (wave-leaved). 1. June. S. Amer.
 — *vereca'ndum* (ruddy). 1½. July. E. Ind. 1776.
 — *Zeyla'nicum* (Ceylon). 1. June. Ceylon. 1752.

PANDA'NUS. Screw-Pine. (From *pan-dang*, the Malay name. Nat. ord., *Screw-Pines* [*Pandanaceæ*]. Linn., 22-Diœcia 1-Monandria.)

Stove evergreen trees, with white flowers. Chiefly by suckers; sandy loam. Winter temp., 50° to 60°; summer, 60° to 85°.

- P. amaryllifo'lus* (amaryllis-leaved). 20. E. Ind. 1820.
 — *candela'brum* (candlestick). 60. Guinea. 1826.
 — *edu'lis* (eatable). Madagascar. 1824.
 — *e'legans* (elegant). Isle of France. 1826.
 — *fascicula'ris* (fascicled). 20. E. Ind. 1822.
 — *furca'tus* (forked). E. Ind. 1824.
 — *hu'milis* (dwarf). 8. Mauritius.
 — *ine'rmis* (unarmed). E. Ind. 1818.
 — *integri'folius* (entire-leaved). E. Ind. 1823.
 — *lœ'vis* (smooth). China. 1823.
 — *latifo'lus* (broad-leaved). E. Ind. 1820.
 — *longifo'lus* (long-leaved). E. Ind. 1829.
 — *margin'a'tus* (margined). E. Ind. 1823.
 — *murica'tus* (point-covered). Madagascar. 1826.
 — *odorati'ssimus* (sweetest-scented). 20. E. Ind. 1771.
 — *pygma'us* (dwarf). January. Mauritius. 1830.
 — *reflexus* (bent-back). E. Ind. 1818.
 — *se'ssilis* (stalkless). E. Ind. 1820.
 — *spira'lis* (spiral). 20. N. S. Wales. 1805.
 — *utilis* (useful. Red-spined). 20. I. of Bourbon.

PANICLE is a loose bunch of flowers, as in the Oat (*Ave'na*), and London Pride (*Saxi'fraga*).

PANNING is forming a pan or basin in the soil round the stem of a tree or shrub, in which to pour water.

PANSY. (*Vi'ola tri'color*.) The native situation of the wild Pansy is generally in fields of growing corn, where it is partially shaded from the wind and the heat of the midday sun. To grow the Pansy for the purpose of exhibition, the situation for the plants should also be one sheltered from all cutting winds, as these are very destructive, often injuring, and even killing, the plants close to the soil, by twisting them about. The situation should be open to the free circulation of the air, and exposed to the morning sun, but protected from the full influence of the midday sun, which injures the colour of the blooms. The plants should be placed together in beds made for the purpose. The situation should be cool and moist, but thoroughly drained; for although the Pansy requires considerable moisture during the blooming season, and through the summer months, yet it is very impatient of superabundant moisture, and the plants will be found never to do well when the soil becomes in any degree sodden.

The *Soil* should be rich and tolerably light. Decayed cucumber-bed dung is the best manure, and the soil a light, hazel loam, with a good portion of decayed turf from pasture land, thoroughly intermixed by frequent stirring and digging, and to three barrow-loads of this soil add one of the cucumber-bed manure two years old. Manure-water, particularly guano-water, applied during the blooming season, is very beneficial.

The *Plants* should be carefully selected for the purpose of producing blooms for exhibition, as it will be always found that when they have flowered well through one season, they never produce so fine blooms the second. Those who intend to grow the Pansy for exhibition should select young plants well established from cuttings for the purpose. For the spring exhibitions in May and June, select plants struck the previous autumn, in August and September; and for the autumn exhibitions in September, select plants struck early in the spring; and after these have produced their blooms, save them for store plants, to produce

cuttings, always having a constant succession of young plants for the purpose of blooming.

Propagation.—The young side-shoots are to be prepared for cuttings, as the old, hollow stems seldom strike freely, and do not grow so strong for spring blooming. Take off a sufficient quantity of these side-shoots in August, or the beginning of September, and for autumn-blooming in April and May; these insert either under hand-glasses, or in pots placed in a cool frame in some good, light compost, mixed with a good quantity of silver-sand, taking care to keep them moderately moist, and shading them from hot suns.

The *Disease* to which the Pansy is most subject is a withering away suddenly, as if struck by something at the root. This disease has received various names, as *root-rot*, *decline*, &c.; but both cause and remedy are unknown. Old plants are much more subject to it than young ones, and it appears to be most prevalent during hot and dry seasons. When a plant is thus struck, which is indicated by a withering of the foliage, if it be a rare and choice kind, immediately take all the cuttings you can get, and strike them, as almost invariably the old plants die. Strong, stimulating manures are productive of this disease. As a preventive keep the surface of the soil frequently stirred.

Insects.—The worst foes of the Pansy are the slug and the snail. To destroy and keep away these vermin, water the bed late of an evening, in moist weather, with lime-water, and sprinkle the surface pretty thickly with fresh wood-ashes. See AGROMYZA.

Box for exhibiting Blooms.—Dr. Lindley says, that the best-constructed box for exhibiting twenty-four Heart's-ease is made of deal, of the following dimensions: twenty inches long, one wide, and five inches deep; the lid made to unhinge; a sheet of zinc fitted inside, resting upon a rim; four rows of six holes each cut in the zinc at three inches apart; under each hole a zinc tube soldered to the plate, and intended to contain the water; the apertures to admit the flower made in the form of a key-hole, as it will admit part of the calyx, and keep the flower in a flat position. The outside may be painted green; but the zinc plate should be painted of a dead white.

PANSY FLY. *Agromyza*.

PANTILES. See BRICKS.

PAPA'VER. Poppy. (From *papa*, pap, or thick milk; referring to the juice. Nat. ord., *Poppyworts* [Papaveraceæ]. Linn., 13-Polyandria 1-Monogynia.)

Seeds in March and April, where the plants are to remain; division of the roots of the perennial ones; light, rich, sandy soil.

HARDY PERENNIALS.

- P. alpinum* (alpine). 3. White. July. Austria. 1759.
 — *bracteatum* (bracted). 4. Red. May. Siberia. 1817.
 — *croceum* (saffron-coloured). 1. Saffron. May. Altai. 1829.
 — *nudicaule* (naked-stalked). 1½. Yellow. July. Siberia. 1730.
 — *glabra'tum* (smooth). ½. Yellow. July. Siberia. 1800.
 — *luteum* (yellow-flowered). 1½. Yellow. July. Siberia. 1730.
 — *radica'tum* (rooted). ½. Yellow. July. Norway. 1800.
 — *orientale* (eastern). 3. Red. May. Armenia. 1714.
 — *co'ncolor* (one-coloured). 3. Scarlet. June. South Europe. 1714.
 — *macula'tum* (spotted). 3. Scarlet. June. South Europe. 1714.
 — *Persicum* (Persian). 1½. Brick. June. Persia. 1830.
 — *pilosum* (long-hairy). Red. 2½.
 — *Pyrenaicum* (Pyrenean). 1. Yellow. July. Pyrenees.
 — *puni'ceum* (red). 1. Red. June. Switzerland.
 — *rubro-auranti'acum* (red-orange). 3. Red. July. Dahuria. 1822.

HARDY ANNUALS.

- P. am'num* (lovely). 1½. Vermilion. North India. 1830.
 — *arenarium* (sand). 1. Red. June. Caucasus. 1828.
 — *argemone* (argemone). 1½. Scarlet. June. Britain.
 — *Armeni'acum* (Armenian). 1½. Yellow. August. Armenia. 1815.
 — *Caucasicum* (Caucasian). 1½. Red. June. Caucasus. 1813.
 — *commuta'tum* (changeable). 1. Scarlet. July. Siberia. 1839.
 — *dubium* (doubtful). 2. Scarlet. June. Britain.
 — *flore-al'bo* (white-flowered). White. June. Tauria.
 — *floribundum* (bundle-flowered). 1½. Scarlet. June. Levant. 1815. Biennial.
 — *ful'gaz* (short-lived). Pale carmine. June. Persia. 1827.
 — *horridum* (horrid). 2. Red. July. N. Holland. 1825.
 — *hy'bridum* (hybrid). 1½. Scarlet. June. England.
 — *laviga'tum* (smooth-leaved). 1½. Red. June. Caucasus. 1823.
 — *Roubia'i* (Roubieu's). 1. Red. June. Montpellier. 1823.
 — *seti'gerum* (bristly). 2. White. July. South Europe. 1823.
 — *somni'ferum* (sleep-causing). 4. White. July. England.
 — *al'bo-pl'eum* (double-white-seeded). 5. Variegated. July. Britain.

- P. somni'ferum al'bum* (white-seeded). 5. White. July. Britain.
 — *fimbria'tum* (fringed). 4. Variegated. July. Britain.
 — *ni'grum* (black-seeded). 4. Purple. July. Britain.
 — *rubro-pl'eum* (double-red). 5. Variegated. July. Britain.
 — *variega'tum* (variegated). 4. Variegated. July. Britain.
 — *tri'lobum* (three-lobed). 2. Red. June. Holland. 1818.

PAPAW-TREE. *Ca'rica*.

PAPER LIGHTS were never much employed, and, since the introduction of Whitney's and other compositions for rendering cloth semi-transparent, are still less likely to be employed. Cartridge paper is the best for the purpose. It should be damped before it is nailed upon the frame, because when dry it becomes taut. It may then be painted over with boiled linseed oil, in which a little white lead has been incorporated. In nailing on the paper, a strip of tape should be placed between the heads of the tacks and the paper, to check the tearing to which the paper is so subject.

PAPER MULBERRY. *Broussonetia papy'cea*.

PAPH'NIA. (*Paphia*, a surname of Venus. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-Gynandria 1-Monandria. Allied to *Maxillaria*.)

Stove orchids. Division, and cuttings of shoots; fibry peat, sphagnum, rotten wood, in shallow baskets. See ORCHIDS.

P. crista'ta (crested). White, purple. July. Trinidad. 1843.

PAPY'RUS. (From *babeer*, pronounced *papeer*, Syrian; hence *papyrus*, paper of the Egyptians. Nat. ord., *Sedges* [Cyperaceæ]. Linn., 3-Triandria 1-Monogynia.)

Stove aquatic perennials. Seeds and divisions; rich, heavy loam, in a tub of water, and in a high stove temperature.

P. antiquorum (ancient). 10. August. Egypt. 1803.

— *e'legans* (elegant). 7. July. W. Ind. 1820.

— *laxi'florus* (loose-flowered). 7. July. Madagascar. 1822.

— *odora'tus* (sweet-scented). 10. July. W. Ind. 1819.

PARAGUAY TEA. *I'lex Paraguaye'nsis*.

PARASITIC PLANTS are such as derive their nourishment from other living plants by rooting into their sap-vessels. Examples are—the Mistletoe and Dodder which attach themselves to the stem, and branches of some plants; the Hypocistis and the Orobanche, or Broom Rape, affix themselves to the roots of

others. The minute fungi which constitute the mildew are also parasites. There is some doubt whether the Ivy is at all parasitical; but whether it derives nourishment or not from trees, it certainly checks the respiration, and prevents the free access of light and air to those upon which it attaches. The orchidaceous plants which grow upon dead wood as readily as upon living timber are not parasites.

PARASTRA'NTHUS. (From *parastrepho*, to invert, and *anthos*, a flower; referring to the inverted position of the flowers. Nat. ord., *Lobeliads* [*Lobeliaceæ*]. Linn., 5-Pentandria 1-Monogynia. Allied to the *Lobelia*.)

Half-hardy herbaceous perennials, from the Cape of Good Hope. Seeds and cuttings of the young shoots in spring and autumn; sandy loam and leaf-mould. A cool greenhouse or cold pit in winter; the flower-border in summer.

P. simplex (simple-stalked). $\frac{1}{2}$. Yellow. June. 1774.
— *unidentata* (one-toothed). $\frac{3}{4}$. Blue. July. 1794.
— *varifolia* (various-leaved). 1. Yellow. June. 1812.

PARDA'NTHUS. (From *pardos*, a leopard, and *anthos*, a flower; referring to the spotted flowers. Nat. ord., *Irids* [*Iridaceæ*]. Linn., 3-Triandria 1-Monogynia. Allied to *Aristea*.)

Hardy, herbaceous, orange-flowered perennials. Seeds or divisions in spring; rich, sandy loam; a sheltered border in winter.

P. Chinensis (Chinese). 2. June. China. 1759.
— *Nepalensis* (Nepalese). 2. June. Nepaul. 1823.

PAREIRA BRAVA ROOT. *Cissampelos*.

PARINA'RUM. (From *parinari*, the Guianan name. Nat. ord., *Chrysobalans* [*Chrysobalanaceæ*]. Linn., 7-Heptandria 1-Monogynia.)

The rough-skinned or grey plum is the produce of *P. excelsum*. Stove evergreens. Cuttings of ripe shoots in spring, in sand, under a glass, in bottom-heat; sandy loam and dried leaf-mould. Winter temp., 50° to 55°; summer, 60° to 85°.

P. campestre (field). 6. Yellow. Guiana. 1824.
— *excelsum* (tall). 60. White. Sierra Leone. 1822.
— *macrophyllum* (large-leaved). 3. White. Sierra Leone. 1822.

PARING and BURNING are never to be practised by the gardener, except for the purpose of charring the turf, and rendering porous the soil cut from the banks of clayey ditches. When this is carefully done, a serviceable dressing is obtained. But paring and burning, as a general practice, is extremely wasteful; and, though it may give a good crop immediately afterwards, never fails, by speedy exhaustion, to demonstrate how great has been the dispersion of carbonaceous matter.

PARIVO'A. (The name in Guiana. Nat. ord., *Leguminous Plants* [*Fabaceæ*]. Linn., 17-Diadelpia 4-Decandria. Allied to *Amherstia*.)

Stove evergreen tree. Cuttings in spring, in a hotbed; loam and leaf-mould. Winter temp., 50° to 60°; summer, 60° to 85°.

P. grandiflora (large-flowered). 30. Purple. Guiana. 1821.

PARK, in the modern acceptance of the word, is an extensive adorned inclosure surrounding the house and gardens, and affording pasturage either to deer or cattle. But a park, strictly and legally, is a large extent of a man's own ground inclosed and privileged for wild beasts of chase by prescription or by royal grant.

PARKE'RIA. (Named after C. S. Parker, its discoverer. Nat. ord., *Ferns* [*Polypodiaceæ*]. Linn., 24 - *Cryptogamia* 1-*Filices*.)

Stove Ferns. See **FERNs**.

P. acrostichoides (acrostichum-like). Pale yellow. July. N. Amer. 1827.

— *Lockhartii* (Lockhart's). Brown. May. Trinidad. 1834.

— *pteroides* (pteris-like). $\frac{1}{2}$. Brown. August. Essequibo. 1825.

PA'RKIA. Nitta-tree. (Named after Mungo Park, the African traveller. Nat. ord., *Leguminous Plants* [*Fabaceæ*]. Linn., 16 - *Monadelphina* 6 - *Decandria*. Allied to *Mimosa*.)

Stove evergreen trees, with crimson flowers, from Sierra Leone. Cuttings of half-ripened shoots in sand, in heat, under a bell-glass, in May; sandy peat and loam. Winter temp., 48° to 50°; summer, 60° to 80°.

P. Africana (African). 30. March. 1822.

— *uniglobosa* (one-globed-flowered). 30. March. 1822.

PARKINSONIA. (Named after J. Parkinson, a botanical author. Nat. ord., *Leguminous Plants* [*Fabaceæ*]. Linn., 10-Decandria 1-Monogynia. Allied to *Gymnocladus*.)

Stove evergreen shrub. Seeds, when obtainable; cuttings of half-ripened shoots, treated like *Parkia*.

P. aculeata (prickly). 12. Yellow. W. Ind. 1739.

PARNA'SSIA. Grass of Parnassus. (Named after Mount Parnassus, where, from the elegance of these plants, they were fabulously said to have first sprung. Nat. ord., *Tutsans* [*Hypericaceæ*]. Linn., 5-Pentandria 3-Tetragynia.)

P. palustris is one of our prettiest British marsh plants. Hardy, herbaceous, white-flowered perennials. Seeds and divisions in spring; shady, marshy places.

P. asarifolia (asarum-leaved). $\frac{1}{2}$. July. N. Amer. 1812.

— *Caroliniana* (Carolina). $\frac{1}{2}$. May. N. Amer. 1802.

P. palustris (marsh). $\frac{1}{2}$. July. Britain.
— *parviflora* (small-flowered). $\frac{1}{2}$. June. N. Amer.
1820.

— *speciosa* (showy). $\frac{1}{2}$. July. N. Amer.

PAROCHETUS. (From *para*, near, and *ochelos*, a brook; its habitat. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 17-*Diadelphia* 4-*Decandria*. Allied to *Goodia*.)

Half-hardy, evergreen, Nepaulese creepers. Division in spring; cuttings under a hand-light, in summer; loam and leaf-mould. The protection of a cold pit in winter.

P. communis (common). Purple. July. 1820.
— *major* (larger). Lilac. June. 1827.

PARROT-BEAK PLANT. *Clianthus*.

PARROTIA. (Named after *M. Parrot*. Nat. ord., *Witch-Hazels* [Hamamelidaceæ]. Linn., 4-*Tetrandria* 2-*Digynia*. Allied to *Forthergilla*.)

Greenhouse deciduous shrub. Cuttings of young shoots getting firm, in sand, under a glass, in spring; peat and loam. Should be tried in a greenhouse of a medium temperature.

P. Persica (Persian). 10. Persia. 1848.

PARRYA. (Named after *Captain Parry*, the arctic navigator. Nat. ord., *Crucifers* [Brassicaceæ]. Linn., 15-*Tetradynamia*. Allied to *Arabis*.)

Require a greenhouse in winter. Seeds; common garden-soil.

P. arctica (arctic). $\frac{1}{2}$. Purple. Melville Island. 1820. Annual.

— *integerrima* (very-entire-leaved). $\frac{1}{2}$. Rose, purple. April. Siberia. 1829. Evergreen.

PARSLEY. (*Petroselinum sativum*.)

There are two varieties, the Common Plain-leaved and the Curly-leaved.

Sow annually, once in February, and again in the end of June. Sow moderately thick, in narrow drills barely a quarter of an inch deep, twelve inches apart if in a bed by itself, or in a single one round the edge of a bed, the soil being raked level, and the stones immediately over the seed gathered off. The plants make their appearance in from two to six weeks. When two or three inches high, they may be gathered from as required. In early June, when they make a show for seed, the stems should be cut down close to the bottom, and again in September, if they have acquired a straggling, rank growth. This will cause them to shoot afresh, and acquire a strong growth before the arrival of severe weather. On the approach of frost, if protection is afforded to the plants by means of haulm or reed panels, so supported as not to touch them, it will preserve them in a

much better state for use in winter and spring. But a still more effectual plan is to take up some of the strongest and best-curved plants in September, and plant them in pots, two or three plants in each, using a rich soil. If these be placed in a pit or greenhouse, and abundance of liquid-manure given, they will be very superiorly productive throughout the winter.

To obtain Seed.—Allow some of the plants to run up in June; they should not, however, be allowed to stand nearer than eighteen inches to each other. The seed ripens in early autumn, and, when perfectly dry, may be beaten out and stored. Soot is an excellent manure for parsley, and preserves it from root-canker, the only disease affecting it.

PARSNIP. (*Pastinaca sativa*.) The two varieties, Hollow-crowned and Guernsey, are nearly alike.

Soil.—A rich, dry, sandy loam, and the deeper the better. The most inimical to it is gravel or clay. Trench the ground two spades deep, a little manure being turned in with the bottom spit. In the Isle of Guernsey, which has long been celebrated for the fineness of its parsnips, sea-weed is the manure chiefly employed. Of dung, that of pigeons is the best. Decayed leaves are also very favourable to its growth. The situation cannot be too open.

Sow from the end of February to the beginning of April, but the earlier the better. It has been recommended, in field cultivation, to sow them in September; in the garden, when sown at this season, they also obtain a finer size, but many of them run to seed. In the Isle of Guernsey they regulate their time of sowing according to the soil: in the most favourable soils they sow in January, or, if the soil is wet or stiff, they do not insert the seed until the latter end of March.

Sow in drills ten inches apart, and half an inch deep; the compartment being laid out in beds not more than four feet wide, for the convenience of weeding, &c. When the seedlings are two or three inches high, thin to ten inches apart, and remove the weeds both by hand and small hoeing. The beds require to be frequently looked over, to remove all seedlings that may spring up afresh, as well as to be frequently hoed until the plants so cover the ground as to render it impracticable.

The roots may be taken up as wanted in September, but they do not attain maturity till October, which is intimated by the decay of the leaves.

In November, part of the crop may be taken up, and, the tops being cut close off, layed in alternate layers with sand, for use in frosty weather. The remainder may be left in the ground, and taken up as required, as they are never injured by the most intense frost, but, on the contrary, are rendered sweeter. In February or March, however, any remaining must be taken up, otherwise they will vegetate. Being preserved in sand, they continue good until the end of April or May.

To obtain Seed.—Some of the finest roots are best allowed to remain where grown; or else, being taken up in February, planted in a situation open, but sheltered from violent winds. If of necessity some of those are employed which have been preserved in sand, such should be selected as have not had their tops cut off very close.

In dry weather water plentifully twice a week. At the end of August the seed is usually ripe; the umbels may then be cut, and when thoroughly dried on cloths, the seed beaten out and stored.

Seed should never be employed that is more than a twelvemonth old.

PARTERRE is synonymous with our English name *Flower Garden*.

PARTING the roots is a mode of propagation available with some plants; and where a large increase of an individual specimen by this mode is desired, its flower-stems should be removed as fast as they are produced. This makes the plant stool, for whatever prevents the formation of seed, promotes the development of root.

PARTRIDGE PEA. *Heiste'ria*.

PASCA'LIA. (Named after *Dr. Pascal*, professor at Parma. Nat. ord., *Compositæ* [Asteracæ]. Linn., 19-Syngenesia 2-Superflua. Allied to *Heliopsis*.)

Half-hardy herbaceous. Division in spring; cuttings under a hand-light, in summer; should have a dry, warm spot, or the protection of a frame, in winter.

P. glau'ca (milky-green). 1½. Yellow. July. Chili. 1799.

PASQUE-FLOWER. *Anemone pulsatilla*.

PASSERINA. Sparrowwort. (From *passer*, a sparrow; referring to the beaked seeds. Nat. ord., *Daphnads* [Thymelacæ]. Linn., 8-Octandria 1-Monogynia. Allied to *Dais*.)

Greenhouse evergreens, white-flowered, and

from the Cape of Good Hope, except where otherwise mentioned. Cuttings of the young shoots, half-ripe, in sand, under a glass, in April or May; sandy peat, with a few nodules of fibry loam. Winter temp., 40° to 48°; summer, a rather shady place after the wood is ripe. *P. filifo'rmis* might be tried against a conservative wall.

P. cilia'ta (hair-fringed). 2. May. 1818.

— *empetrio'lia* (empetrum-leaved). 2. Yellow.

July. Spain. 1834.

— *ericoi'des* (heath-like). 3. May. 1810.

— *filifo'rmis* (thread-shaped). 1. July. 1752.

— *grandiflo'ra* (large-flowered). 1. May. 1789.

— *hirsu'ta* (hairy). 1½. July. South Europe. 1759.

— *la'xa* (loose). 2. June. 1804.

— *linearifo'lia* (narrow-leaved). 3. May. 1820.

— *ri'gida* (stiff). 2. May. 1817.

— *spica'ta* (spiked). 1. May. 1787.

— *Stelle'ri* (Steller's). June. Siberia. 1817.

— *tenuiflo'ra* (slender-flowered). 2. July.

— *Thunbe'rgii* (Thunberg's). 3. May. 1817.

— *uniflo'ra* (one-flowered). ½. May. 1759.

PASSIFLO'RA. Passion-Flower. (From *passio*, suffering, and *flos*, a flower; referring to the filaments, or rays, and other parts, being likened to the circumstances of Christ's crucifixion. Nat. ord., *Passifloracæ*. Linn., 16-Monadelphia 2-Pentandria.)

Cuttings of young wood, in almost any stage during summer, in sand, under a bell-glass or hand-light; peat and loam, *Cæru'lea* and its varieties are the hardiest. It not only flowers freely, but ripens fruit against a wall round London. *Incarna'ta* is a pretty thing, of semi-herbaceous habit, which has also, in a few cases, been tried against a wall. The shoots of the *cæru'lea* group might easily be wrapped together, and defended in winter by a mat. The fruit of many is very pleasant and refreshing to most palates. The *edu'tis* fruits very freely in a stove, but the flower has no great beauty; it fruited a number of years with us in a cool conservatory, but it died at last. We found it harder than the newest one, *Billo'ttii*. The *quadrangula'ris*, to be fruited, must be grown in a good, light situation, in a warm stove, and be artificially impregnated. See *GRANADI'LLA*.

HALF-HARDY CLIMBERS.

P. cæru'lea (common-blue). 30. White, blue.

August. Brazil. 1699.

— *glauco'phy'lla* (milky-green-leaved). 20.

Blue. August. Brazil.

— *incarna'ta* (flesh-coloured). 30. Pink. June. S. Amer. 1629.

STOVE CLIMBERS.

P. acti'nia (sea-anemone-like). 10. Whitish. November. Organ Mountains. 1842.

— *ala'ta* (winged-stalked). 20. Green, blue, red. June. W. Ind. 1772.

— *a'lba* (white). White. August. Brazil. 1830.

— *ama'bilis* (lovely). 10. Scarlet, white. May.

— *Anderso'nii* (Anderson's). Striped. August.

Saint Lucia. 1823.

— *Bello'ttii* (Bellotti's). White, pink. July. 1848.

— *Buonaparte'a* (Buonaparte's). Red, blue, white.

June.

— *Caracca'sa* (Caraccas). 15. Pink. June. Caraccas. 1821.

— *Cavanille'sii* (Cavanilles'). Copper. August.

W. Ind. 1822.

— *Chine'nsis* (Chinese). 30. White, blue. August.

China. Greenhouse.

- P. ciliata* (hair-fringed). 6. Pink. August. Jamaica. 1783.
 — *coccinea* (scarlet). 20. Scarlet. September. Guiana. 1820.
 — *cuneata* (wedged). 10. July. Caraccas. 1816.
 — *cuprea* (copper-coloured). 20. Orange. July. Bahama Islands. 1724.
 — *difformis* (deformed). Green, black. September. Santa Martha. 1844.
 — *digitata* (finger-leaved). 12. Blue. Trinidad. 1820.
 — *edulis* (eatable). 30. White. July. W. Ind.
 — *filamentosae* (thready). 20. White, blue. August. America. 1817.
 — *gracilis* (slender). 6. White. August. 1823.
 — *heterophylla* (various-leaved). 15. Yellowish. St. Domingo. 1817.
 — *hispidula* (bristly). Yellow, white. June. Mexico. 1846.
 — *kermesina* (crimson). 20. Crimson. July. 1831.
 — *laurifolia* (laurel-leaved). 20. Red, violet. August. W. Ind. 1690.
 — *ligularis* (strap-shaped). 20. Green, purple. September. Peru. 1819.
 — *Loudoni* (Loudon's). 20. Purple. 1838.
 — *lutea* (yellow). 4. Yellow. May. America. 1714.
 — *maliformis* (apple-formed). 20. Green, red. September. W. Ind. 1731.
 — *Medusae* (Medusa). Yellow, orange. Guatemala. 1850.
 — *Middletonia* (Middleton's). 6. Rose, blue. June. S. Amer. 1837.
 — *Moorea* (Mr. Moore's). 20. Whitish. July. Buenos Ayres. 1837.
 — *nigelliflora* (nigella-flowered). 10. White, green. September. Buenos Ayres. 1835.
 — *oblongata* (oblong). 10. Apetal. July. Jamaica. 1816.
 — *onychina* (Lieutenant Sullivan's). 10. Purplish. November. Buenos Ayres. 1827.
 — *pallida* (pale). 20. Yellow, green. August. St. Domingo.
 — *palmeta* (hand-shaped). 12. White. Brazil. 1817.
 — *penduliflora* (drooping-flowered). 20. Green. May. Jamaica. 1849.
 — *perfoliata* (leaf-stem-pierced). Crimson. July. Jamaica. 1800.
 — *phoenicea* (crimson). 20. Crimson. September. 1831.
 — *picturata* (painted). 15. Red. September. Brazil. 1820.
 — *quadrangulata* (square-stalked). 20. Green, blue. August. Jamaica. 1763.
 — *racemosa* (racemed). 20. Scarlet. June. Brazil. 1815.
 — *rotundifolia* (round-leaved). 8. White. June. Antilles. 1779.
 — *rubra* (red-fruited). 15. Red. June. W. Ind. 1831.
 — *stipulata* (stipuled). White. August. Cayenne. 1779.
 — *tiliaefolia* (lime-tree-leaved). 10. Green, red, blue. July. Peru. 1823.
 — *Tucumaneensis* (Tucuman). 10. White, green. July. Chili. 1836.

PASTINACA. Parsnip. (From *pastinum*, a dibble; referring to the shape of the root. Nat. ord., *Umbelliferae* [Apiaceae]. Linn., 5-Pentandria 2-Digynia.)
 See **PARSNIP**, the only cultivated species.

PATAGONULA. (From *Patagonia*, its native country. Nat. ord., *Verbenaceae* [Verbenaceae]. Linn., 5-Pentandria 1-Monogynia.)

Stove evergreen tree. Cuttings in sand, under a glass, in May; sandy loam and fibry peat. Winter temp., 50° to 55°; summer, 60° to 85°.

P. Americana (American). 20. White. July. S. Amer. 1732.

PATERSONIA. (Named after Col. W. Paterson, a botanist. Nat. ord., *Irids* [Iridaceae]. Linn., 16-Monadelphica 1-Triandria. Allied to *Watsonia*.)

Greenhouse herbaceous perennials, from New South Wales, and blue-flowered, except where otherwise mentioned. For culture, see *IRIS*.

- P. glabra* (smooth). 1½. Purple. June. 1814.
 — *glauca* (milky-green). 1. June. 1820.
 — *lanata* (woolly). 1. June. 1824.
 — *longifolia* (long-leaved). 1. June. 1818.
 — *longicaupa* (long-stalked). 1½. June.
 — *media* (intermediate). 1. Purple. June. 1816.
 — *occidentalis* (western). 1. June. 1824.
 — *pymcea* (dwarf). May.
 — *sapphirina* (sapphire). 1. May. 1837.
 — *sericea* (silky). 1½. June. 1803.

PATRI'NIA. (Named after M. Patrin, a Siberian traveller. Nat. ord., *Valerianaceae* [Valerianaceae]. Linn., 4-Tetrandria 1-Monogynia.)

Hardy biennials, except *heterophylla*, and all yellow-flowered. Seed in March, in light soil.

- P. heterophylla* (various-leaved). May China. 1837. Hardy herbaceous.
 — *intermedia* (intermediate). 1. June. Siberia. 1820.
 — *rupes* (rock). 1. May. Siberia. 1801.
 — *scabiosifolia* (scabious-leaved). 1. June. Dahuria. 1817.
 — *Sibirica* (Siberian). 1. June. Siberia. 1751.

PAULLINIA. (Named after S. Paullii, a Danish botanist. Nat. ord., *Soapworts* [Sapindaceae]. Linn., 8-Octandria 3-Trigynia. Allied to *Sapindus*.)

Stove evergreen, white-flowered twiners. Cuttings of ripe shoots in sand, under a bell-glass, and in bottom-heat; loam and leaf-mould. Winter temp., 60°; summer, 60° to 85°.

- P. bipinnata* (doubly-leafted). 20. Brazil. 1816.
 — *Carthaginensis* (Carthage). 16. Carthage. 1818.

- *cauliflora* (stem-flowering). 18. Caraccas. 1822.
 — *Cupa'nia* (Cupani's). 20. Trinidad. 1818.
 — *hispida* (bristly). 20. Trinidad. 1825.
 — *pubescens* (downy). 16. S. Amer. 1820.
 — *Senegale'nsis* (Senegal). 16. Guinea. 1822.
 — *tetragona* (square-stemmed). 20. Cayenne. 1825.
 — *vespertilio* (bat). 20. St. Christopher. 1823.

PAULO'WNIA. (Named after the hereditary princess of the Netherlands, daughter to the Emperor of Russia. Nat. ord., *Figworts* [Scrophulariaceae]. Linn., 14-Di-dynamia 2-Angiospermia.)

Cuttings of young shoots, when a little firm, under a hand-light. It is a deciduous tree, with beautiful foliage, and quick growing, somewhat resembling a Catalpa, and said to be hardy, and has not only stood the winter, but flowered in England, though with us it has been killed nearly to the ground every season; deep, good loam; might stand better if starved in summer.

- P. imperialis* (imperial). 30. Lilac. June. Japan. 1840.

PAVE'TTA. (The East Indian name. Nat. ord., *Cinchonads* [*Cinchonaceæ*]. Linn., 4-*Tetrandria* 1-*Monogynia*. Allied to *Ikora*.)

Stove, white-flowered evergreens. Cuttings of half-ripened shoots in sand, under a bell-glass, in spring; sandy loam and fibry peat. Winter temp., 45° to 48°; summer, 60° to 75°.

P. areno'sa (sandy-leaved). 3. June. China. 1799.

— *Cal'fra* (Caffrarian). 3. August. Cape of Good Hope. 1823.

— *Indica* (Indian). 3. September. E. Ind. 1791.

— *tomento'sa* (woolly). August. E. Ind. 1824.

PA'VIA. (Named after *P. Paw*, a Dutch botanist. Nat. ord., *Soapworts* [*Sapindaceæ*]. Linn., 7-*Heptandria* 1-*Monogynia*. Allied to *Æsculus*.)

Hardy deciduous trees and shrubs, very like the Horse Chestnut. Seeds, layers, and grafting on the Horse Chestnut. The weeping one and others look interesting when grafted at a good height; deep, sandy loam.

P. Califo'rnica (Californian). 30. White. California. 1838.

— *ca'rnea* (flesh-coloured). 16. Red. 1820.

— *discol'or* (two-coloured). 4. Red, yellow. June. N. Amer. 1812.

— *fla'va* (yellow). 20. Yellow. May. N. Amer. 1764.

— *Indica* (Indian). North of India. 1844.

— *macrocar'pa* (large-fruited). 20. Red, yellow. May. 1826.

— *macrosta'chya* (large-spiked). 6. White. June. N. Amer. 1820.

— *negle'cta* (neglected). 20. Pale yellow. May. 1823.

— *ru'bra* (red-flowered). 6. Scarlet. May. N. Amer. 1711.

— — *argu'ta* (short-notched). 4. Red. Europe. 1820.

— — *hum'ilis* (dwarf). 3. Red. May. N. Amer.

— — *hum'ilis pe'ndula* (weeping-dwarf). Red.

— — *sublucinia'ta* (slightly-cut-leaved). 6. Red. May. N. Amer. 1823.

PAYO'NIA. (Named after *J. Pavon*, a Spanish botanist. Nat. ord., *Mallowworts* [*Malvaceæ*]. Linn., 16-*Monadelphia* 8-*Polyandria*. Allied to the Mallow.)

Stove evergreens. Cuttings in sand, under a glass, in heat; sandy loam. Stove temperature. The following are the only two worth culture:—

P. coccei'nea (scarlet). 2. Scarlet. St. Domingo. 1816.

— *malacophy'lla* (soft-leaved). 3. Red. August. Bahia. 1823.

PAXTO'NIA. (Named after *Sir J. Paxton*, the celebrated gardener to the Duke of Devonshire. Nat. ord., *Orchids* [*Orchidaceæ*]. Linn., 20-*Gynandria* 1-*Monandria*. Allied to *Spathoglottis*.)

Stove orchid. Division in spring; turfy peat and fibry loam, with a little charcoal and silver sand. See *ORCHIDS*.

P. ro'sea (rosy). †. Pink. July. Philippines. 1837.

PEA. (*Pisum sativum*.) There are many varieties, but a great sameness about those of the early kinds. One good variety is all that is required in a small

garden; and for one combining all the good qualities of a pea the *Early Conqueror*, 8 feet high, is the best. The *Early Warwick*, *Prince Albert*, *Danecroft Rival*, *Shilling's Grotto*, &c., are also all good, well-known peas, where variety is required. The best varieties to succeed are the *Blue Scimitar*, 2½ to 3 feet high; *Champion of England*, a first-rate pea, 4 to 5 feet high; *Reliance Marrow*, 6 to 7 feet high; *British Queen*, 6 to 7 feet high; *Bishop's new Long-pod Dwarf*; all of which are first-rate peas to succeed each other from May till November. There are many other good varieties, such as the *Auvergne*, 4 to 5 feet high; *Spanish Dwarf*, 1 to 2 feet high; *Banksian Blue*, 2 to 3 feet high; *Ringwood Marrow*, 4 to 5 feet high; *Blue Imperial*, 3 feet high; *Blue Surprise*, 4 to 5 feet high; *Woodford Marrow*, 3 feet high; *Knight's Tall Marrow*, 7 to 8 feet high; *Knight's Dwarf Green*, 3 feet high; *Tall Green*, 6 to 7 feet high; *Mammoth Tall Green Marrow*, 6 to 7 feet high; *Dwarf Green Marrow*, 3 feet high; and *Hair's Dwarf Green Mammoth*, 4 feet high.

One quart of an early variety of pea is quite sufficient for sowing a row 100 feet in length; half a pint less sown in the same distance of the blue varieties, and one pint of the large and tall kinds, are sufficient where the soil is rich, well pulverized, and pretty free from slugs, &c.

Soil.—A soil moderately rich and open is best, rather inclining to strong for the lofty growers and main crops, but for the early and late ones, light and dry. Dwarf varieties will grow on poorer and lighter soils than the others.

Early Peas.—The best mode of obtaining these is according to the following plan, suggested by Mr. Bishop, gardener to C. Baldwin, Esq., of Camberwell:—

In the last week of January, cut some turf in strips of three inches in width, the length depending on the width of the hotbed in which they are to be placed. Lay the pieces of turf in the frame, grass downwards, close together; then make in the centre of each piece of turf, by pressing it with the edge of a board, a drill, in which sow the peas, which soon come up; and then take the lights entirely off in the day-time unless very cold, and shut them down at night. Keep them close till the beginning of March. When the peas are to be planted in the border, lift the box entirely off, and the strips of turf, in

which the peas will be well rooted, and place them on a hand-barrow, and take them to the border for planting, which do in a drill cut so deep that they shall be about an inch lower than they were in the box. It may be necessary to protect them from frost and cool winds at first, and this may be done by putting some short sticks along the rows, and laying some long litter or cuttings of evergreens over them.—*Gard. Chron.*

Sowing.—In January they may be sown in sheltered borders, and larger supplies in an open compartment, and thence continued throughout February and until the end of May once every two or three weeks.

For the first production in the following year, a small sowing may be made at the close of October, and repeated about the middle of November and December, though it often happens that these are scarcely a week forwarder than those inserted in the following February.

Sow in drills, or by the dibble in rows, at a distance proportionate to the height to which the variety grows, as well as according to the season; Dwarfs at two feet, for the early and late crops, but three feet for the main ones; Marrowfats at three and a half or four and a half; Knight's Marrowfats and other gigantic varieties at six or eight. Peas not intended to be supported require the least room. At the early and late sowings the seed should be buried an inch deep, but for the main crops an inch and a half. With respect to the distances, it may be inserted in the row, of the Dwarfs, two in an inch; Blues and other middle-sized varieties for the main crops, three in two inches; the tall and Knight's Marrowfat, as well as others of similar stature, full an inch apart. The best mode is to sow in single rows, ranging north and south, and the sticks alternately on each side of the row. If the rows range east and west, put the sticks on the south side.

When the summer sowings are made, if dry weather is prevalent, the seed should be soaked in water for two or three hours previous, and the drills well watered.

When the plants have advanced to a height of two or three inches, they are to be hoed, and earth drawn around their stems. This should be done twice or three times gradually as they ascend, previous to the sticks being placed. It should be performed in dry weather; for

the winter-standing crops it should be especially attended to, as it protects them greatly from frost.

Sticking is not required until the plants show their tendrils. If, during the time of blossoming or swelling of the fruit, continued drought should occur, water may very beneficially be applied, it being poured between the rows, if they are in pairs, or otherwise in a shallow trench, on one side of each. Watering the leaves is rather injurious. Failures in the rows of the earliest crops may be rectified by transplanting. This is best performed in March: the plants thus removed must be watered until they have taken root, and also shaded if the weather is hot. It is a good practice to nip off the top of the leading shoots of the early and late crops as soon as they are in blossom, as it greatly accelerates the setting and maturity of the fruit. Too much care cannot be taken, when the pods are gathered, not to injure the stems. We know, from lengthened experience, that if the pods are cut off with scissors, the plants produce one-fourth more than when roughly gathered from.

The more regularly the plants are gathered from, the longer they continue in production, as the later pods never attain maturity if the earlier ones are allowed to grow old before they are gathered. In very severe weather, the winter-standing crops require the shelter of litter or other light covering, supported as much as possible from the plants by means of branches; ropes or twisted straw-bands are good for this purpose, to be fixed along each side of the rows with wooden pins driven into the ground. Whichever mode of shelter is adopted, it must be always removed in mild weather, otherwise the plants will be spindled and rendered weaker.

To obtain Seed, leave some rows that are in production during July, or sow purposely in March. Care must be taken, however, that no two varieties are in blossom near each other at the same time. The plants intended for seed ought never to be gathered from. When in blossom, all plants which do not appear to belong to the variety among which they are growing should be removed. They are fit for harvesting as soon as the pods become brownish and dry. When perfectly free from moisture, they should be beaten out, otherwise, if hot, showery

weather occurs, they will open and shed their seed.

Forcing commences in December, in the early part of which month they may be sown in a hotbed to remain, or thick to transplant, during the succeeding month, into others for production. These may be repeated in January, and the transplanting takes place in February. It is also a common practice to sow in a warm border during October, and the plants being cultivated as a natural ground crop, are removed into a hotbed during January.

The hotbed must be moderate, and earthed equally over the depth of six or eight inches with light, fresh mould not particularly rich. The seed must be buried one inch and a half deep. The frame, which is required to be two feet and a half high behind, and one and a half in front, ought to be put on three or four days before the crop is sown, that the steam and heat may abate. Seed may likewise be sown at the above times in pots or pans, and placed round the bins of the stove. At the close of September, also, some peas may be sown in pots, and sunk in the earth of any open compartment; when the frost commences, to be removed into the greenhouse. A border of fresh earth being made in the front of it early in December, the plants are removed into it, in rows two feet asunder, or, still better, in pairs, with ten inches interval, and two feet and a half between each pair. These will come into production about the middle of March.

In every instance, as stated above, the rows should be two feet, the seed or plants being set an inch asunder. The plants are ready for moving when an inch or two high. They must be shaded and gently watered until they have taken root. Preserve as much earth about their roots at the time of removal as possible.

Transplanted peas are most productive, and run the least to straw in the forcing frames. Air must be admitted as freely as circumstances permit, the same precautions being necessary as for Cucumbers. Water must be given at first sparingly, otherwise decay or superluxuriance will be occasioned; but when they are in blossom, and during the succeeding stages of growth, it may be applied oftener and more abundantly, as it is necessary for the setting and swelling of the fruit.

The shading during hot days, and covering at night, must also be particularly attended to. From three to five months elapse between the times of sowing and production, according to the fineness of the season, length of the days, &c.

The temperature may be uniformly kept up throughout their growth, having 50° for the minimum at night, and 70° for their maximum by day.

PEACH. *Pe'stica vulgaris*.

Select Varieties in the order of their ripening.—Those in *italics* are good forcing peaches. Acton Scot, Pourpré Hâtive, Grosse Mignonne, Red Magdalen, *Royal George*, *Noblesse*, *Bellegarde*, or *Galande*, Late Admirable, Walburton Admirable.

Propagation: Budding.—This is performed during July. (See BUDDING.) Some persons plant the stock against the wall in its permanent situation, and bud it there; but peaches are principally budded in the nursery. The bud is introduced at about six inches from the ground. It remains dormant until the succeeding spring, when the head of the stock is cut off close above the bud, and the wound pared off particularly neat, in order that the returning sap may heal and skin it over. It is a good practice to apply some white lead, or a similar material, in order to exclude the air and moisture. During this summer the young bud will produce a shoot of some two or three feet in length, and this is headed back in the succeeding spring to about five or six eyes, thus leaving about five or six inches of the base of the shoot. The bud generally produced laterals during the first summer, especially towards the upper end; and the point where these commence branching generally dictates the point to which they are cut back. In the summer following they will produce four or five shoots, which must be carefully trained, and kept totally free from insects, and in the succeeding autumn the tree is fit for removal to a wall. Plants with one shoot, or of the season next after the budding, are termed by our nurserymen *maidens*; but in the succeeding summer they are termed *trained* trees. There is no better stock for general peach-budding than the Plum, a kind called the Muscle being very generally used. Some persons advocate the use of either Almond stocks or Peaches raised from the stone; but it is scarcely safe to

recommend the practice. The Americans, to be sure, raise many of their orchards from the stone; but they have a very different climate to deal with, and we hear, moreover, many complaints of the short-lived character of their trees. The peach stones may either be sown on heat to expedite them, or otherwise. They should be cleansed and dried at the ripening period, and may be sown late in the autumn, care being taken to preserve them from the mice. The seedlings must be carefully transplanted like other shrubs; those raised on heat in pots, and those in the open ground to the nursery immediately after one summer's growth, unless sowed to remain. Their pruning must be performed as other stocks, and their subsequent culture similar.

Soils, &c.—The selection of a proper soil, and the securing a sound and dry subsoil, are of as much importance with the peach as with the vine. Three-fourths of the trees in this kingdom have been ruined by borders too deep, too damp, and too rich. Unless proper means be taken to ripen the wood, all other labours are vain. The first step in root culture is to examine the subsoil; if this is not sound and dry, it must at once be thoroughly drained. As to depth of soil, we do not exceed two feet, and nobody has had greater success for many years. How much, however, that depth is above the ground-level must depend on the character of the locality: if a low and damp district, we would have nearly half the volume of the soil above the front walk; if a very dry and elevated spot, not more than a third. The latitude of the place should also have an influence; and in many parts of Scotland and the north of Ireland we should raise nearly the whole border above the ordinary level. No soil is fitter than a good, sound, hazel loam; but, whatever be the colour, it is absolutely essential that it be of a texture slightly adhesive. We introduce no manure with such a soil, but generally mix with it about one-third of ordinary dark, light garden-soil, adding about one-sixth of ordinary tree or shrub leaves with the whole. We generally make an artificial subsoil, planting on what we term "prepared stations." The site being drained, and the excavations formed, brick-bats, or any imperishable rubbish, is strewn over the bottom, and then covered with

cinders; the latter have a couple of barrows of half-decayed leaves spread over them. This comprises the whole of our preparations. As for manures, we top-dress systematically every year in May: this forms an essential accompaniment of the shallow border system.

Culture during the Growing Period.—Protection to the blossoms is the first thing in early spring. (See PROTECTION.) The next point is disbudding. Healthy trees are sure to produce a host of little shoots, which must not be retained. Disbudding is best performed by degrees, and about three periods two or three weeks apart suffice. At the first, which should be when the young shoots are from two to three inches in length, those shoots only need be removed which project nearly at right angles from the wall; as, also, those which shoot between the wall and the branch. Nothing can justify the reservation of any of these but bare spaces of walling; such should be covered, even if by shoots of inferior character. At the second disbudding a sort of "singling out" may be practised. At the third thinning a clever selection should be made, and in doing so we would direct especial attention to the preservation of the lowest-placed young shoots all over the tree, for on these mainly depends the supply of successional wood. By the fan mode of training, which is at least equal to any other mode, acute angles, of course, are formed by every two branches when they meet. The lowest shoot in this angle, then, must be carefully preserved, and if overtopping the next shoot a-head, it may at once be pinched. Our practice is to turn next to all the extreme points, and to set the leading shoot free. It is of no use suffering any side-shoots to compete with the leading ones; therefore, all within four or five inches may be stripped away, or, if doubtful, pinched. And now a regular thinning or disbudding must be carried out between the bole and the extremities of the branches; and the only requisite is not to suffer, if possible, two young shoots to proceed side by side from any given point. Thus, training from any young shoot at the base, we would not reserve another nearer than four or five inches up any given line, and so on, all over the tree. One thing may be observed; if the operator is at any time doubtful about a young shoot, let

him merely pinch the point instead of totally removing it; at the finishing disbudding he will perceive whether it may be entirely stripped away. Disbudding should be completed a little before Midsummer. During this period the fruit must be thinned, if too thick, and this may be done at three different periods; the first, when the fruit is as large as a marble, when all malformations, and those crowded behind the shoots, may be taken away. The remaining, if too thick, must be singled out, leaving none in pairs or touching each other. At this period, they may average three inches apart all over the tree. In about three weeks, another slight thinning may be made, taking away a few where crowded; and now the remainder may be reserved until the stoning is nearly completed, which will be in the course of July, when all not wanted may be plucked away. It is difficult to give any set rule as to distance, so much depends on the powers of the trees; from six to eight inches apart, finally, may be considered a fair crop. Water should be liberally supplied during their swelling, if the weather is dry. All gross shoots, or robbers, should be pinched when about six inches in length, throughout all the growing season.

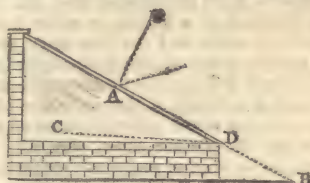
Culture during the Rest Period.—Do not brush off the foliage of peaches in the autumn; the practice is not only unscientific, but really absurd. If the summer's management has been right, the pruning will be but a small affair. It consists of thinning out the shoots which had escaped notice in summer, and shortening back as much of the point of each shoot as appears immature: this is readily told by its colour and general character. These things done, the trees must be neatly trained, and such should be completed by the beginning of February, about which time we cover ours to retard the blossom-bud. Before covering them we apply a sulphur-paint, as a preventive of the red spider. This is simply sulphur beat up in soap-water, four ounces of soft soap to a gallon, adding nearly as much sulphur as it will carry, and plenty of clay to give it a body. This is applied in all directions, between the shoots, with a painter's brush. In order to soften the colour, it is well to add plenty of soot to the mixture.

Diseases.—The *Gum* is the principal;

and as a gumming habit is readily induced by wounds, especially if the tree be growing in a deep and rich soil, great care must be exercised at all times not to wound them. Rich soils, also, must be avoided, and manurial matters applied, for the most part, on the surface. The *Mildew* is a great annoyance to some cultivators. Sulphur is the best remedy, and an avoidance of extremes of wet and dry at the root the best preventive. *Blistered leaves* are said to be caused by cold at the germinating period; but this we much doubt. It probably arises from imperfect ripening of the wood in the preceding season, caused by ungenial soil and ill-training; indeed, it would not be difficult to trace three-fourths of the evils to which the peach is liable to ill-conditioned wood.

Insects.—See APHIS and ACARUS.

Forcing: Form of House.—The best form for a peach-house is that thus described by the late T. E. Knight, Esq. :—



As the lights, to be moved to the required extent with facility, must necessarily be short, the back wall of the house must scarcely extend nine feet in height, and this height raises the rafters sufficiently high to permit the tallest person to walk with perfect convenience under them. The lights are divided in the middle at the point A, and the lower are made to slide down to the B, and the upper to the point A. The flue, or hot-water pipe, enters on the east or west end as most convenient, and passes within six inches of the east and west wall, but not within less than two feet of the low front wall, and it returns in a parallel line through the middle of the house, in the direction either east or west, and goes out at the point at which it entered. The house takes two rows of peach or nectarine trees, one of which is trained on trellises, with intervals between for the gardener to pass, parallel with the dotted line C. These trees must be planted between the flue and the

front wall, and the other row near the back wall, against which they are to be trained.

If early varieties be planted in the front, and the earliest where the flue first enters, these being trained immediately over the flue, and at a small distance above it, will ripen first; and if the lower lights be drawn down in fine weather to the point B, every part of the fruit on the trees, which are trained nearly horizontally along the dotted line C, will receive the full influence of the sun. The upper lights must be moved as usual by cords and pulleys, and if these be let down to the point A, after the fruit in the front tree is gathered, every part of the trees on the back wall will be fully exposed to the sun, at any period of the spring and summer after the middle of April, without the intervention of the glass. A single fireplace will be sufficient for a house fifty feet long, and the foregoing plan and dimensions will be found to combine more advantages than can ever be obtained in a higher or wider house. Both the walls and the flue must stand on arches, to permit the roots of the trees to extend themselves in every direction beyond the limits of the walls, for whatever be the more remote causes of mildew, the immediate cause generally appears to be want of moisture beneath the soil, combined with excess of moisture or dampness above it. A bar of wood must extend from B to D, opposite the middle of each lower light, to support it when drawn down.—*Knight's Select Papers*.

The soil, culture, and pruning are the same as required for those trees grown on walls.

Forcing in Pots is a very excellent mode, and enables the peach to be thus grown in establishments where there is no regular peach-house. Pot a three-years-old tree in a twelve-inch pot, cutting it back to four buds, and shift every year until it has attained an eighteen-inch pot, a size which need never be exceeded. Let the soil be turfy, and mixed with decaying wood from the bottom of an old wood stock.

Commencing Forcing and Temperature.—The best and most successful directions on these points are the following, given by Mr. W. Hutchinson, gardener at Eatington Park. He says: "Bring the trees into the house in mild weather during November, a little earlier or later

according to the state of the weather; do not start them all, however, at once; the last lot need not be put in until the 1st of January. Any later than this would not answer, as the weather, if clear, is then hot through the day; commence forcing them at 55° at night, allowing the thermometer to fall to 50° in the morning, if cold; but if the weather is mild, never to fall below 55°, and from that to 60°, is the usual temperature kept up throughout the period of forcing during the night. During the day I make up for low night temperature, when I have the chance, by sun heat. Do not be fastidious about a few degrees: to get it high enough is the main point, say from 70° to 85° and 90°, until the fruit is stoned; then keep them very hot during the day, viz., from 95° to 105°, and sometimes even as high as 110°. Of course a great deal of moisture is required with this high temperature. Syringe over-head twice a day, and sometimes oftener when the air is dry, and you will scarcely ever be troubled with either green fly or red spider. Watering at the root must be carefully attended to; very little is wanted until the trees get covered with leaves, but after the fruit is stoned they should be watered plentifully. Of course the watering must be gradually withdrawn as the fruit approaches maturity, in order to increase their flavour."—*Gard. Chron.*

When the blossoms are well opened, impregnation should be aided by applying the pollen with a camel's-hair pencil.

One essential for securing vigorous production in the peach-house is to have the roots of the trees well nourished. If these are not duly supplied with moisture and food during the time the fruit is setting and swelling, a failure of the crop is inevitable. To secure such a supply, it is a most effectual treatment to give the border a top-dressing, at the close of February, of charred turf. Liquid-manure and water, of course, must be given also, as the dryness of the soil and appearance of the trees indicate is necessary.

Standards.—In Essex we have grown the peach successfully, both as a standard and as an espalier, in a garden sloping to the south, and well protected from the east and strong westerly winds.

PEAR. *Pyrus communis*.

Superior Dessert kinds, arranged in the order of ripening.—1, Citron des Carmes; 2, Jargonelle; 3, Délice d'Hardenpont;

4, Dunmore; 5, Marie Louise; 6, Louis Bonne of Jersey; 7, Fondante d'Automne; 8, Beurré d'Amalis; 9, Beurré Diel; 10, Althorpe Crassanne; 11, Winter Nelis; 12, Passe Colmar; 13, Hacon's Incomparable; 14, Thompson's; 15, Knight's Monarch; 16, Glout Morceau; 17, Beurré d'Aremberg; 18, Easter Beurré; 19, Soldat Laboureur; 20, Josephine de Malines; 21, Ne plus Meuris; 22, Beurré Rance.

Kitchen Pears in the order of their ripening.—1, Bezi d'Heri; 2, Summer Compote; 3, Catillac; 4, Bellissime d'Hiver; 5, Uvedale's St. Germain.

Useful and profitable Orchard Pears.—1, Beurré de Capiaumont; 2, Beurré Diel; 3, Louis Bonne of Jersey, Williams's Bon Chrétien; 4, Jargonelle; 5, Swan's-egg; 6, Moorfowl's-egg. Those living north and south of the centre of England must make allowance accordingly.

Of *Dessert Pears*, Nos. 1, 2, 3, 4, 6, 8, 9, 10, 13, 15, 16, 18, will succeed well, if necessary, as espaliers, pyramids, &c.; that is to say, they will do very well without a wall. Of course, the orchard pears may be added to this section, if necessary. Nos. 5, 11, 12, 16, 17, 19, 20, 21, 22, should have a wall, if possible. Nos. 11, 12, 17, 21, deserve a south aspect.

Propagation.—Grafting is the usual mode; and for this purpose two distinct kinds of stocks are used—the one called the free stock, or wild seedlings, the other the quince. The first is the most proper for the orchard pear, as this produces much larger trees; the latter is best adapted, in general, for espaliers, walls, and pyramidal trees in gardens.

Budding is done precisely as for other fruits, and for the same purposes as grafting. By this course, however, one year, or nearly so, may be considered as lost, in point of time.

Seed is resorted to, either to produce stocks, or to raise new kinds. The seeds should be washed from the pulp when the fruit is fully ripe, dried and preserved as other seeds, and sown in the February following. Care must be taken to preserve the seed from mice whilst germinating. Those who wish to expedite the process, for the sake of gaining time, with fancy seedlings, may sow and rear the young plants in a moderate bottom-warmth, sowing in January or February, potting off the plants when up, and hardening them off by the beginning

of June, when they may be planted out in a warm spot. The best way to prove such seedlings is to graft them on a good bearing old tree, on a quince stock, if possible; they will thus fruit in half the time. Our nurserymen, who rear immense quantities for stocks, bury the pears in a pit in autumn, and take them up in the February following to sow, mixing abundance of sand with the mass, to separate the seeds from the pulp; the whole is then sown together.

Soil.—The pear delights in a sound loam, rather inclining to clayey than sandy. It will, however, grow freely in sandy loams; but the fruit is very apt to crack, or become otherwise disfigured, through their impatience of drought. Any ordinary soil of a sound texture will do for their culture; and if what is termed "in good heart," no manures are necessary. For standard trees in orchards, the soil should be at least two feet deep; but for espaliers, walls, pyramids, &c., half a yard may suffice, if sound. A dry subsoil is particularly necessary, especially for garden pears.

Culture during the Growing Period.—The chief point is to keep down watery spray, which is generally produced in abundance. Caution must be exercised in not doing this too early, or the embryo blossom-buds may be driven into growth. Our practice is to commence by disbudding; this is generally in the beginning of May. All gross *foreright* shoots are stripped away, and several of the more luxuriant shoots, where too thick. In a few weeks the shoots begin to lengthen considerably, and their character, as to fruitfulness, is in some degree determinable. Very few of our pears bear on wood of the previous year, but a great many shoots plainly show betimes that their tendencies are towards fructification; such should, by all means, be encouraged. About Midsummer, a selection may be made; most of those which look browner than the rest, and are shorter jointed, must be reserved; and much of the paler, longer-jointed, and more succulent-looking spray may be cut or pinched back, leaving about four inches at the base. Those reserved we tie down to the older branches, sometimes in a reverse position—indeed, just as they happen to lay. In about a month or so from this operation we pinch the points from all growing shoots, or

nearly so. This is generally done about the middle of August, and has a tendency to cause the wood to become highly solidified, and thus induces fruitfulness. After this period, the only care is to pinch the points of all succulent spray which may arise.

Culture during the Rest Period.—When the summer culture of the pear is properly attended to, but little is left for the winter pruner. Nevertheless, there is still something to do. Some shoots will have escaped the summer dresser, and many "snags" must be cut entirely away. Most of those which had been pinched back to three inches at Midsummer, or after, must be pruned closely off. No stump or spur must be left, unless a blank space occur; as these, by what used to be termed spurring back, only produced their like again. These snags removed, the young shoots tied or nailed down must be examined, and all considered superfluous cut away. Those reserved must be tied down on the old stems, or nailed between them, and little more is necessary until the growing period returns.

Storing.—The conditions requisite for keeping pears are a rather cool room, and one that is dry. It is well known, however, that several of our superior pears require a certain amount of warmth when near the period of use, to give them their proper flavour. We, therefore, in advising a somewhat cool room, refer to one of the most important objects connected with the dessert-table—the providing a long and continuous succession. Still it has been generally found, that in proportion as any given kind has been kept past its natural period, it has, in like proportion, lost flavour, as, also, that buttery texture for which a ripe pear is so much esteemed. What is the best temperature is not quite certain; it probably differs somewhat in different kinds. We should say 55° to 60°; not more than the latter; probably, a condition of air similar to a fine, mild, October day.

Diseases.—(See CANKER.) They are also liable to decay at the points of the shoots in some soils, which, we think, generally arises from the roots entering improper subsoils.

Insects.—See ACARUS, ASPIDIOTUS, and SELANDRIA.

PEAT EARTH. See BOG EARTH.

PEAT PLANTS. See AMERICAN PLANTS.

PEDICULARIS. Lousewort. (From *pediculus*, a louse; supposed effect on sheep eating it. Nat. ord., Figworts [Scrophulariaceæ]. Linn., 14-*Didynamia* 2-*Angiospermia*. Allied to *Melampyris*.)

Seeds and cuttings. Loam and peat; the great proportion require the cold pit in winter. *Scopulorum Carolinum* is a giant among them, and one of the most beautiful.

HARDY HERBACEOUS.

- P. adsce'ndens* (ascending). 4. Red. July. Switzerland. 1819.
- *a'tro-ru'bens* (dark red). 1. Dark red. July. Switzerland. 1819.
- *Canadensis* (Canadian). 4. Yellow. July. N. Amer. 1780.
- *com'o'sa* (tufted). 1. Yellow. July. Italy. 1775.
- *comp'a'cta* (close-headed). 1. Yellow. July. Siberia. 1815.
- *e'legans* (elegant). Purple. June. Siberia. 1827.
- *incarna'ta* (flesh-coloured). 4. Pink. June. Austria. 1796.
- *Oe'deri* (Oéder). Yellow. July. North Europe. 1827.
- *pa'llida* (pale). Yellow. July. N. Amer. 1826.
- *palu'stris* (marsh). 2. Purple. June. Britain.
- *probusci'dea* (nosed). Purple. June. Siberia. 1827.
- *ro'sea* (rosy). Rose. July. South Europe. 1825.
- *ru'bens* (ruddy). Red. May. Dahuria. 1827. Annual.

— *specio'sa* (showy). Purple. June. Siberia. 1827.

— *stri'a'ta* (channelled). Yellow, crimson. June. Dahuria. 1826.

— *sylva'tica* (wood). 1. Pink. August. Britain.

HALF-HARDY HERBACEOUS.

- P. euphrasioid'es* (eyebright-like). 14. Purple. Siberia. 1816.
- *flamme'a* (flame). 1. Yellow, scarlet. July. Switzerland. 1775.
- *folio'sa* (leafy). 1. Cream. July. Austria. 1785.
- *gyro'f'e'ra* (circular). 4. Purple. July. Switzerland. 1819.
- *mol'lis* (soft-leaved). 1. Purple. June. Ne-paul. 1850.
- *myriophyl'la* (myriad-leaved). 1. Yellow. June. Dahuria. 1816.
- *recu'tita* (circumcised). 4. Purple. June. Austria. 1787.
- *resupina'ta* (lying-back). 1. Purple. July. Siberia. 1816.
- *rostra'ta* (beaked). 4. Purple. June. Switzerland. 1819.
- *scop'ulorum Carolinum* (Charles's-sceptre). 5. Yellow. July. Sweden. 1799.
- *tubero'sa* (tuberous). 1. Yellow. June. Switzerland. 1799.
- *uncina'ta* (hook-flowered). 1. Yellow. July. Siberia. 1815.
- *versico'lor* (party-coloured). 1. Yellow. May. Switzerland. 1819.
- *verticilla'ta* (whorled). 1. Rose. July. Austria. 1790.

PELAGONIUM. Stork's-bill. (From *pelargos*, a stork; referring to the beak-like formation of the ripe seed-pod. Nat. ord., Cranesbills [Geraniaceæ]. Linn., 16-*Monadelphia* 4-*Heptandria*.)

All natives of the Cape of Good Hope, except where otherwise mentioned.

GREENHOUSE BIENNIALS AND ANNUALS.

- P. anemonifol'ium* (anemone-leaved). 14. Pink. July.

- P. Canarie'ns* (Canary). 1½. White, red. August. Canaries. 1802.
— caucalisifolium (caucalis-leaved). ¾. Pink. July. 1812.
— coriandrisifolium (coriander-leaved). 1. White, red. June. 1724.
— humifolium (trailing). ½. Red. June. 1801. Annual.
— senecioides (groundsel-like). ¾. White. June. 1775. Annual.

GREENHOUSE HERBACEOUS.

- P. alchemilloides* (alchemilla-like). ¾. Pink. June. 1693.
— althæoides (marsh-mallow-like). ¾. White. May. 1724.
— Andre'wsii (Andrews's). Blush. June. 1802.
— bla'ndum (soft). Blush. 1801.
— chamædrisifolium (chamædrys-leaved). ¾. White. May. 1812.
— columb'num (dove's-foot). ½. Purple. August. 1795.
— heracleifolium (cow-parsnip-leaved). ½. Grey. July. 1800.
— la'cerum (torn-leaved). 1½. Pink. July. 1731.
— lu'ridum (lurid). Straw. August. 1811.
— multicaule (many-stalked). ¾. Pale violet. July. 1802.
— oenotheræ (oenothera-like). 1. Rose. April. 1812.
— ovale (oval). 1½. Purple. June. 1774.
— parvisifolium (small-flowered). Purple, red. June. 1800.
— petroselinum (parsley-like). Blush. July. 1802.
— procumbens (lying-down). ¾. Purple. April. 1801.
— pulverulentum (powdery). 1. Grey, blood. July. 1822.
— recurvatum (curled-back). White. July. 1790.
— sanguineum (bloody). 1. Scarlet. July.
— tabularæ (tabular). ¾. Pale yellow. June. 1775.

GREENHOUSE TUBEROUS-ROOTED.

- P. affine* (kindred). ¾. Purple. June. 1800.
— apifolium (parsley-leaved). ¾. White, red. June. 1800.
— aristatum (awned). ½. White, red. June. 1800.
— asarifolium (asarum-leaved). ¾. Dark purple. December. 1821.
— atrum (dark brown). ¾. Dark brown. June. 1793.
— auriculatum (ear-leaved). ¾. Pale red. May.
— barbatum (bearded). ¾. Flesh. July. 1790.
— bubonifolium (bubon-leaved). ¾. White, purple. May. 1800.
— carneum (flesh-coloured). ¾. Pink. May. 1812.
— ciliatum (hair-fringed). ¾. Flesh. May. 1795.
— congestum (crowded). ¾. Lilac. June. 1824.
— conspicuum (conspicuous). 1. Crimson. July. Africa. 1810.
— coronillafolium (coronilla-leaved). ¾. Brown. June. 1795.
— corydalifolium (corydalis-flowered). ¾. Pale yellow. May. 1821.
— crassicaule (thick-stalked). ¾. White. July. Africa. 1786.
— depressum (depressed). ¾. Cream. May. 1812.
— dioicum (dioecious). ¾. Dark brown. June. 1795.
— dipetatum (two-petaled). ¾. Pale purple. May. 1795.
— echinatum (prickly-stalked). 1. White, red. June. 1789.
— filipendulifolium (dropwort-leaved). ¾. Green, brown. July. 1812.
— fissifolium (cloven-leaved). ¾. White, red. June. 1795.
— flavum (yellow. Carrot-leaved). ¾. Yellow, brown. August. 1724.
— floribundum (bundle-flowered). ¾. White. April. 1800.

- P. foliosum* (leafy). ¾. Yellow, red. May. 1800.
— heterophyllum (various-leaved). ¾. White, red. May. 1800.
— hirsutum (shaggy). ¾. Pink. March. 1788.
— incrassatum (thickened). ¾. Pale rose. May. 1801.
— lacinia'tum (jagged-leaved). ¾. Pink. May. 1800.
— Leea'rum (Lee's). ¾. White. May. 1823.
— lineare (narrow-petaled). ¾. Yellow. June. 1800.
— lobatum (lobed. Cow-parsnip-leaved). 1. Yellow, brown. July. 1710.
— longifolium (long-flowered). ¾. Yellow. May. 1812.
— longifolium (long-leaved). ¾. Pink. May. 1812.
— luteum (yellow). ¾. Yellow. May. 1802.
— melandanthum (black-flowered). ¾. Dark brown. May. 1790.
— millefolium (milfoil-leaved). ¾. Yellow, brown. July.
— multiradiatum (many-rayed). 1. Dark brown. May. 1820.
— nervifolium (nerved-leaved). ¾. Variegated. June. 1812.
— niveum (snowy). ¾. White. June. 1821.
— nummularifolium (moneywort-leaved). ¾. Yellow. June. 1801.
— nutans (nodding). ¾. Yellow. May. 1788.
— orobifolium (orobus-leaved). ¾. Blood. June. 1824.
— ovalifolium (oval-leaved). ¾. White. May. 1820.
— oxalidifolium (wood-sorrel-leaved). ¾. Yellow. June. 1801.
— pallens (pale-flowered). ¾. Pale yellow. May. 1800.
— petiolum (shield-leaved). 2. Purple. July. 1701.
— — variegatum (variegated). 2. Purple. July. 1701.
— pennifolium (wing-formed). ¾. Yellow. May. 1800.
— pictum (painted). ¾. White, red. April. 1800.
— pilosum (long-haired). ¾. Pink. June. 1801.
— pulchellum (neat). ¾. White. April. 1795.
— punctatum (dotted-flowered). ¾. Cream. May. 1794.
— purpureascens (purplish). ¾. Purple. May. 1800.
— radica'tum (large-rooted). ¾. Yellow. June. 1802.
— radula (raspberry-leaved). ¾. Yellow. June. 1774.
— rapaceum (rape. Fumitory-flowered). ¾. Purple. May. 1788.
— reflexum (bent-back-leaved). ¾. White. June. 1800.
— reticulatum (netted). ¾. Pink. May. 1820.
— retusum (bitten). ¾. Dark crimson. June. 1824.
— revolutum (rolled-back). ¾. Purple. July. 1800.
— roseum (rosy). ¾. Rose. April. 1792.
— rumicifolium (dock-leaved). ¾. Yellow. June. 1823.
— schizopetalum (cut-petaled). 1. Yellow, brown. June. 1821.
— setosum (bristly). ¾. Rose. May. 1821.
— spatulatum (spatula-leaved). ¾. Yellow. May. 1805.
— affine (kindred). ¾. Yellow. April. 1794.
— tene'llum (slender). ¾. Yellow. June. 1802.
— triphyllum (three-leaved). ¾. Flesh. May. 1812.
— triste (sad. Night-smelling). 1. Green, yellow. July. 1632.
— undulatum (wavy-leaved). ¾. White. June. 1795.
— undulatum (wavy-flowered). ¾. Black. June. 1821.
— viciafolium (vetch-leaved). ¾. Pale rose. May. 1779.
— violastorum (violet-flowered). ¾. White. May. 1810.
— virginæum (virgin). ¾. White, red. June. 1795.

GREENHOUSE EVERGREEN SHRUBS.

- P. abrotanifolium* (southernwood-leaved). 3. Red. May. 1791.
— acerifolium (maple-leaved). 3. Pale purple. April. 1784.
— acetosum (sorrel-leaved). 3. Pink. July. 1710.
— acugnaticum (acunna). 3. Red. June. 1818.
— adulteri-num (counterfeit). 3. Purple. May. 1785.
— alnifolium (alder-leaved). 2. Pink-veined. May.
— alternans (alternate. Parsley-leaved). 1. White, purple. June. 1791.
— amplissimum (largest). 2. Purple. May.
— anceps (two-edged). $\frac{1}{2}$. Pink. June. 1788. Trailer.
— angulosum (angled). 3. Purple. August. 1724.
— a'ndens (burning). Red. June. 1807.
— armatum (armed). Purple. May. 1789.
— artemisiifolium (wormwood-leaved). White. June. 1817.
— asperum (rough). 3. Pink. August. 1795.
— astragalifolium (astragalus-leaved). $\frac{1}{2}$. White, purple. July. 1788.
— australe (southern). $\frac{1}{2}$. Rose. June. N. Holland. 1792.
— balsameum (balsamic). 3. Pink. August. 1790.
— Barringtonii (Barrington's). 3. Purple. May.
— Beaufortianum (Beaufort's). 3. Lilac. June.
— Bellardii (Bellard's). White. June.
— Bentinckianum (Bentinck's). 2. Scarlet. May.
— betulinum (birch-leaved). 3. White, red. July. 1759.
— bicolor (two-coloured). 1 $\frac{1}{2}$. Purple, white. July. 1778.
— blattarium (moth muleyne). 1 $\frac{1}{2}$. Violet. July. 1720.
— bullatum (blistered). 1. Pink. June.
— canescens (hoary). White. July.
— canum (hoary). 1 $\frac{1}{2}$. Pale purple. August. 1820.
— capitatum (round-headed. Rose-scented). 3. Purple. June. 1690.
— carduifolium (thistle-leaved). 3. Pale purple. July. 1816.
— carinatum (keeled). $\frac{1}{2}$. White, purple. July. 1820.
— carnosum (fleshy-stalked). 1. Purple, white. May. 1724.
— cerasophyllum (horn-leaved). 1. White. June. Africa. 1786.
— citriodorum (citron-scented). 3. White. July. 1800.
— cochleatum (twisted-shell-leaved). 3. Purple. May.
— conducticatum (double. Heart-leaved). 3. Purple, white. May. 1774.
— consanguineum (kindred). 2. Pink. June.
— cordatum (heart-leaved). 3. Purple, white. May. 1774.
— coronopifolium (buckhorn-leaved). 1 $\frac{1}{2}$. Pale red. August. 1791.
— cortusae-folium (cortusa-leaved). 2. Pink. July. Africa. 1786.
— cotyledonis (navelwort-leaved). 2. White. June. St. Helena. 1765.
— crenatum (scalloped-leaved). 2. July. 1800.
— crispum (curl-leaved). 3. Purple. September. 1774.
— crithmifolium (samphire-leaved). 1. White, purple. May. 1790.
— cucullatum (hooded-leaved). 3. Purple. May. 1690.
— — grandiflorum (large-flowered). 4. Purple. May. 1818.
— — majus (greater. Royal George). 4. Purple. May. 1812.

- P. cucullatum striatiflorum* (streaked-flowered). 4. Purple. May. 1810.
— cuspidatum (sharp-pointed). 3. White, red. July.
— cynosbatifolium (eglantine-leaved). 1 $\frac{1}{2}$. Dark red. June.
— dasycaulon (thick-stemmed). 1. White, purple. September. 1795.
— decolorum (comely). Lilac. July. 1825.
— delphinifolium (larkspur-leaved). 3. Pink. June.
— denticulatum (tooth-leaved). 3. Pink. June. 1789.
— discipes (disk-stalked). 3. Africa. 1808.
— diversifolium (different-leaved). 3. White, red. July. 1794.
— elatum (tall). 2. White, purple. August. 1795.
— electum (select). White. July.
— elegans (elegant). 3. White, red. April. 1795.
— — majus (larger-flowered). 3. White, red. June. 1795.
— — minus (smaller-flowered). 3. White, red. June. 1795.
— eriostemon (woolly-stemmed). 1 $\frac{1}{2}$. White. April. 1794.
— exstipulatum (unstipuled). 3. Violet. July. 1779.
— formosissimum (handsomest). 2. White, red. July. 1759.
— Fothergillii (Fothergill's). 2. Scarlet. August.
— — purpureum (purple). 3. Purple. August. 1810.
— fragrans (fragrant. Nutmeg). 2. Variegated. July.
— fulgidum (shining. Celandine-leaved). 1 $\frac{1}{2}$. Scarlet. May. 1723.
— fuscum (clouded). 3. Purple, red. May. 1812.
— gibbosum (swollen). 1 $\frac{1}{2}$. Green, yellow. June. 1712.
— glaucum (milky-green-leaved). 3. White, red. July. 1775.
— glomeratum (heaped). $\frac{1}{2}$. White. July.
— glutinosum (sticky). 3. Pale rose. May. 1777.
— grandiflorum (large-flowered). 3. White, red. May. 1794.
— gra'tum (grateful. Citron-scented). 2. Pink. June.
— graveolens (strong-smelling. Rose-scented). 3. Purple. May. 1774.
— — variegatum (variegated-leaved). 3. Purple. May.
— grossularioides (gooseberry-like). 2. Pink. June. 1731.
— hepaticifolium (hepatica-leaved). Rose. July. 1791.
— Hermannifolium (Hermannia-leaved). 3. Pink. May.
— heterogamum (dissimilar). 2. Pink. July. 1786.
— hirtum (hairy). Rose. July. 1768.
— hispidum (bristly). 3. Purple. June. 1790.
— holosericeum (velvety). 1 $\frac{1}{2}$. Dark purple. April. 1820.
— hybridum (hybrid). 2. Lilac. July. 1732.
— imbricatum (imbricated). 3. Lilac, purple. June. 1800.
— incisum (cut-leaved). 3. White, red. June. 1791.
— inodorum (scentless). $\frac{1}{2}$. Pale purple. July. N. Holland. 1796. Trailer.
— inquinans (dyed-flowered). 2. Scarlet. July. 1714.
— laevigatum (smooth. Three-leafted). 3. White, red. June.
— lanceolatum (spear-head-leaved). White, purple. July. 1775.
— late-ripes (side-stalked. Ivy-leaved). 2. Pale purple. July. 1787.
— — al'bo marginatum (white-margined). 2. Pale red. August. 1787.

P. late'ripes ro'seum (rose-coloured). 2. Red. August. 1787.
 — *zona'tum* (zoned). 2. Pale purple. August. 1787.
 — *lateri'tium* (brick-coloured). 1½. Red. July. 1800.
 — *laxum* (loose-panicled). 1. White. May. 1821.
 — *leptota'tum* (slender-petaled). 2. Red. June. 1800.
 — *litora'le* (shore). Swan River. 1837.
 — *longicaule* (long-stemmed). 1. Pale rose. June. Trailer.
 — *macula'tum* (spotted). Blush. July. 1796.
 — *malvafo'lium* (mallow-leaved). 2. Pale red. July. 1812.
 — *micra'nthum* (small-flowered). Scarlet. September.
 — *mo'nstrum* (monstrous). 2. Red. July. 1784.
 — *myrrhifo'lium* (myrrh-leaved). 1½. White, red. June. 1696.
 — *nigre'scens* (dark). 4. Purple. May. 1777.
 — *no'thum* (spurious). 2. Pink. May.
 — *obtusifo'lium* (blunt-leaved). 3. Purple. June.
 — *odorati'ssimum* (sweetest-scented). 2. Pink. July. 1724.
 — *oxyphy'llum* (sharp-leaved). 2. White. August. 1800.
 — *pa'llidum* (pale-flowered). 3. Pink. June.
 — *papilionaceum* (butterfly). 3. Pale white. June. 1724.
 — *patenti'ssimum* (most-spreading). 3. Lilac, white. June. 1820.
 — *pa'tulum* (spreading). 3. Pale blood. June. 1821.
 — *pedicella'tum* (long-flower-stalked). 1. Green, brown. July. 1822.
 — *pe'ndulum* (weeping). ½. Red. May. Trailer.
 — *penicilla'tum* (pencilled). 3. White, red. July. 1794.
 — *primuli'num* (primrose-flowered). 1½. Violet. July.
 — *princi'psæ* (princess's). 3. Dark pink. August. 1820.
 — *pu'milum* (dwarf). 1½. Pink. June. 1800.
 — *pustulo'sum* (pimply). 3. White, pink. June. 1820.
 — *quercifo'lium* (oak-leaved). 3. Purple. May. 1774.
 — *bipinnati'fidum* (doubly-leafleted). 4. Purple. May. 1774.
 — *quina'tum* (five-fingered). 1. Pale yellow. May. 1793.
 — *quinquelo'bium* (five-lobed). 3. Red. July. 1820.
 — *quinqueu'lnum* (five-spotted). 1½. Dark purple. July. 1796.
 — *radia'tum* (ray-leaved). ½. Dark purple. July. 1790.
 — *renifo'rme* (kidney-shaped). 2. Purple. July. 1791.
 — *rubifo'lium* (currant-leaved). 3. White. May. 1798.
 — *ri'gidum* (stiff). Whitish. July.
 — *ru'bens* (red-flowered). 3. Purple. June.
 — *rubrocin'ctum* (red-edged). 3. Purple, white. May. 1774.
 — *ru'gosum* (wrinkly). 3. Pink, lilac. July. 1800.
 — *sanicula'fo'lium* (sanicle-leaved). 3. Pale red. July. 1806.
 — *sca'brum* (rough-wedge-leaved). 3. White, red. June. 1775.
 — *sca'ndens* (climbing). 3. Rose. July. 1800.
 — *scuta'tum* (shield). White. August. 1701.
 — *semitri'loba'tum* (half-three-lobed). 3. Purple. May. 1800.
 — *soro'rium* (sister). 3. White, red. May.
 — *specio'sum* (showy). 3. Purple. May. 1794.
 — *spina'sum* (thorny). 3. Pink. May. 1795.
 — *spu'rium* (spurious). 2. Violet. May.

P. staphisagrio'i'des (staves-acre-like). 1½. Purple. July. 1825.
 — *stenope'talum* (narrow-petaled). 1½. Scarlet. June. 1800.
 — *Synno'tii* (Synnot's). ½. Lilac. August. 1825.
 — *tenuifo'lium* (fine-leaved). 3. Purple. June. 1768.
 — *terna'tum* (three-leafleted). 3. Pink. June. 1789.
 — *traga'num* (square-stalked). 2. Pink. July. 1774.
 — *variega'tum* (variegated). 2. Pink. July. 1774.
 — *tomento'sum* (downy). 3. White. June. 1790.
 — *tri'color* (three-coloured). 1½. White, purple. July. 1791.
 — *tricus'pida'tum* (three-pointed). 3. White, purple. June. 1780.
 — *triparti'tum* (three-lobed-leaved). 3. Pale yellow. June. 1789.
 — *unicolo'rum* (one-coloured). 2. Crimson. June.
 — *unifo'rum* (one-flowered). 3. June. 1800.
 — *variega'tum* (variegated-flowered). 3. White, red. June. 1812.
 — *verbascifo'rum* (verbascum-flowered). 1½. Lilac. July. 1811.
 — *viscosi'ssimum* (clammiest). 3. Lilac, white. June. 1820.
 — *vilifo'lium* (vine-leaved). 3. Purple. July. 1724.
 — *Watso'nii* (Watson's). 3. Purple. May.
 — *Wildeno'vii* (Wildenow's). 2. White-veiny. June.
 — *zona'le* (girdle). 2. Scarlet. August. 1710.
 — *cocci'neum* (scarlet). 3. Scarlet. August. 1710.
 — *crystalli'num* (crystalline). 3. Scarlet. August. 1710.
 — *margin'a'tum* (white-margined). 2. Scarlet. August.

PELARGONIUM CULTURE.—*Propagation by Seed* is the only way to raise superior varieties. The first and most important of their qualities is *form*, the next is substance, the next size, and the last colour. To these may be added habit and truss. Save seed only from such as possess already these points approaching to perfection. *In all attempts to hybridize, let the one to bear the seed possess the property of form.* In order to obtain the other properties wanting, cut off the anthers of the well-formed variety before the pollen-cases shed their contents; and the moment the hybridizing is performed, cover the flowers with a close-fitting cap of fine muslin-net, to prevent insects from carrying strange pollen to the stigma dusted with pollen from such varieties as have the desirable properties. When the seed is ripe, gather it carefully, and divest it of its arils, or feather-like appendages, wrap it up in paper, and keep it in a dry drawer, in a cool room, till spring. Sow it early in March, and place it in a gentle heat; a hotbed that has been at work for a few weeks will answer admirably. Sow in wide, shallow pots, well-drained, in a light, rich

compost, press the seed down gently, and cover it about a quarter of an inch. If the seed is good, it will quickly germinate, and should then be removed from the hotbed, and placed upon a shelf in the greenhouse near to the glass. Water very moderately, or the plants will be apt to damp off. As soon as the seedlings have made their second leaf, pot them off singly into two-inch pots, in a compost of loam and leaf-mould, in equal parts, with a liberal addition of river-sand, finely sifted. Replace them on the shelf, and shade for a time from hot sunshine. The seedlings will soon fill these small pots with roots. They must then be re-potted into a size larger pot, and subsequently be treated in the same way as such as have been propagated by cuttings. Keep them close to the glass, and give abundance of air on all favourable occasions. As soon as the weather will permit, place them out of doors, upon a bed of ashes of sufficient thickness to prevent worms from entering the pots. The situation should be an open one, the grand object being to ripen the wood, and induce a stocky or bushy habit, so as to insure their flowering the following season. The size of pots to flower them in need not be more than four and a half inches. When there is a fear of autumnal frosts, remove them into the greenhouse, and place them on a shelf, at such a distance from the glass as will serve to keep them dwarf and bushy. There is no need to top them in the manner recommended hereafter for plants raised from cuttings, the object being not to make fine specimens, but to get them to flower as quickly as possible the spring following.

By Cuttings.—Cuttings may be put in and struck from March to August; the general time, however, is when the plants have done flowering, and require cutting down to make bushy plants for the next season. This generally happens from the end of June to the beginning of August.

The best place to strike the cuttings in is a well-constructed propagating-house; but, as every one has not such a convenience, they may be very successfully propagated in a frame set upon a spent hotbed, first removing the soil, and replacing it upon a thick coat of coal-ashes, to keep out the worms. Upon this coat place another of dry sawdust, to plunge the cutting-pots. This dry sawdust will

serve to absorb the moisture from the earth in the pots and the necessary waterings. The best soil is pure loam, mixed with silver sand. The size of the pots should neither be too large nor too small—five inches wide at the top is the most proper. Some use small pots, and only place one cutting in each. This, where the cuttings are few and the convenience small, will be suitable enough. It has this advantage, also, that the cuttings are, after being rooted, more conveniently repotted, without in the least injuring the young and tender roots; but where the quantity to be increased is large, the former method of putting several cuttings in five-inch pots will be more convenient, and, with care, equally as successful. Whichever method is adopted, the pots must be well drained with broken potsherds, the larger pieces at the bottom, and smaller at the top. Fill them to the top with the prepared loam, which should be put through a rather coarse sieve to take out the stones, roots of grain, and other extraneous matter. It should not be pressed down too hard, but made firm enough to hold the cuttings fast. Another point is to use it in a state neither wet nor dry. The side-shoots which have not flowered, and are not more than two inches long, make the best cuttings. These should be cut off close to the stem from whence they spring with a sharp knife. Cut off the bottom leaves close to the stem, leaving only two of the uppermost. Place the cuttings, after they are made, in a shady situation, upon a dry board or slate, to dry up the wound. This will take an hour on a dry day, or two hours on a dull, cloudy one. Then put them in the prepared pots round the edge, inclining the leaves inwards, so that they may not touch the leaves of those in the contiguous pots when they are placed in the frames, or set upon the heated material in the propagating-house. When a pot is filled, give it a gentle watering, and set it on one side to dry up the moisture on the leaves and surface of the soil. Then plunge them in the frame, and shade them carefully and effectually from the sun, or even from the light. Reduce the shade gradually, using it only during bright sunshine. A little air may also be given every day, by tilting up the lights behind, if in a frame. The propagating-house will only require air when the heat

is too great, to reduce the temperature to 55° or 60°. The cuttings must be frequently examined, to see if roots are formed; and as soon as they are an inch long, pot them off immediately into the smallest 60-pots, which are generally about two inches diameter. A small addition of well-decomposed leaf-mould may be mixed amongst the loam with advantage. When they are finished potting off, give another gentle watering, and replace them in the frame or propagating-house until fresh roots are formed; renew the shading, but disuse it as soon as it is safe to do so, and then give plenty of air, to prevent them being drawn up and spindly. To cause them to become bushy plants furnished with branches close to the pot, nip off the top bud; the lower side buds will then break and push forth, and these must be again stopped as soon as they have made three leaves. The plants will then be ready to receive a second potting, and should be removed into the open air.

The above remarks and directions, so far as the cuttings are concerned, relate only to the (as they are called) *show* varieties. There is another class of pelargoniums, which are denominated *fancy* varieties. These are more difficult to increase by cuttings. Place the cuttings in shallow pans, one and a half inch only deep, with a hole in the centre, in the usual loam and sand, placing them on a shelf in the propagating-house, or in the frame, close to the glass, upon topsy-turned pots. The cuttings are made very short, with a portion of the old wood at the bottom of each. Very little water is given till the callosities are formed, when it is given more freely, and then roots make their appearance, when they are immediately potted off, and the usual treatment followed.

By Buds.—Make a shallow pan ready for them, by first putting in a portion of pure loam and sand, then a covering of pure sand alone, give a gentle watering to settle it, and then prepare the buds. Take a shoot of moderate strength, cut off the leaves, but not quite close to the stem, then cut off the two lowest buds, leaving about a quarter of an inch of wood below each bud. After that, split the shoot containing the two buds down the centre. If the two buds are not exactly opposite, but one a little below the other, the upper one must be shortened

below the bud to the proper length. The upper cut should be very nearly close to the bud. Make a sufficient number ready at once to fill the pan or pot, and plant them, using a short, blunt stick a degree thicker than the bud-cutting. Insert them so as only to leave the bud just above the sand. Plant them close to, and round the edge of the pan, placing the cut side close against the pot, which will, of course, place the bud side inwards. Then fill up the holes with a little dry sand, and water gently again. Place them either in a propagating-house, a shady part of a stove near the glass roof, or in a frame. Shade from bright sunshine in whatever situation they are placed, and water as required. The buds will soon break and show leaves, shortly to be followed by a shoot.

By Roots.—Some kinds of *Fancy Pelargoniums*, and most of the *Cape original species*, are difficult to increase by any of the above methods. In such cases there is left the mode of increase by cuttings of the roots. This is almost certain of success. Take an old plant, shake off carefully all the soil, and cut the roots into short pieces, retaining as many fibres as possible to each. Put each root-cutting singly into as small pots as they can be got into, leaving the top just visible. Place them in the house, or frame, appropriated to propagation; give a gentle watering, and shade effectually. New roots will soon push forth, and then shoots will appear, generally in clusters. When that takes place, reduce the shade, to give colour to the leaves and strength to the shoots. As these advance in growth, thin them gradually, by slipping one or two off at a time, till finally they are reduced to one which is to form the future plant. As soon as this shoot attains the height of two or three inches, nip off the top to cause side-shoots to grow, and so form a neat, bushy plant.

General Culture: the House.—Pelargoniums, like all other large families of plants, require a house to themselves, and one peculiarly adapted to produce fine specimens. The span-roofed form is the best, and for this satisfactory reason—that the plants in such a house grow on all sides alike. The sides of the house should be of glass, the side windows should move up and down, to allow a large circulation of air, and the top lights should also be moveable, to let out the

upper stratum of heated air. The plants should be placed upon stages near to the glass. These stages ought to be broad enough to allow large specimens to stand clear of each other upon them. The size of the house will depend upon the means of cultivation, and the number intended to be grown. To exhibit collections of ten or twelve in number, three or four times during the season, the house should be at least fifty feet long, and twenty feet wide. This will allow a stage in the centre ten feet wide, walks round it two and a half feet wide, and a platform all round two and a half feet broad. This will leave the stage ten feet wide, and forty feet long, which will be ample space for three rows of twelve plants in each, full-sized and well-grown specimens. On the platforms next the frontlight smaller-sized plants may be placed, to succeed the others when they become unsightly through the bloom being over.

The only heat wanted is just enough to keep out the frost, and the best mode of obtaining that heat is by hot water circulating in cast-iron pipes. (*See GREEN-HOUSE.*)

Compost.—Procure from an old pasture, where the grass is of a fine texture, as much turf, three or four inches thick, as will serve to pot the collection for one year; cast it into the compost-yard, and have it immediately chopped up into small pieces, and, as it is done, lay it up in a long ridge, facing east and west, so that the sun can shine upon each side morning and evening. The ridge or bank should not exceed two feet high, on a base of three feet wide. The grassy surface and green roots will soon begin to ferment during the process of decomposition, and the gases arising will penetrate to every particle of soil, and moderately enrich it, quite sufficient to grow geraniums. Let it be turned over every three months for a year, and then it will be fit for use. Unless it be very heavy, or of a close texture, it will not require any addition. If too heavy, add sand to render it of an open texture.

Culture of Established Plants.—Cut them down in July, leave them in a cold pit, and in eight or ten days after being cut down, and receiving moisture about the tops rather than among the roots, the pots may receive a fair watering—as much as will reach every good root. When the buds break, gradually give air.

When one inch in length or so, take the plants to the potting-bench, shake the soil from the roots, examine and prune the roots a little, re-shift into similar, or, what in general will answer better, smaller-sized pots; place them again in the cold pit, and keep close until the fresh roots are running in the new soil; then give air gradually, until at length you expose them *entirely* to the atmosphere, steering clear, however, of cold rains and anything like frost. Plants cut down in June and July, if transferred to small pots, will require to be placed in blooming-pots in the end of October. Those cut down in the end of July, or during August, will not want repotting until the new year has brought lengthened sunshine; and from these different successions of bloom may be expected. To have it fine, cleanliness, air, light, room, and a temperature seldom below 45°, must be leading considerations. Through the winter, unless during sunshine, the temperature should never be higher. After a sunny day it may be from five to eight degrees lower at night with impunity. In the case of large plants, little stopping will be required after repotting. Thinning instead will often be necessary. Hence old plants generally produce the earliest bloom, as every general stopping of the shoots, as well as every shift given, retards the blooming period.

PELLITORY OF SPAIN. *A'nthemis pyre'thrum.*

PELTA'RIA. (From *pelte*, a little buckler; referring to the shape of the seed-pod. Nat. ord., *Crucifers* [Brassicaceæ]. Linn., *Tetradynamia*. Allied to *Draba*.)

Seeds; division of the roots of *altia'cea*. Common soil.

P. altia'cea (garlic-scented). 1. White. June. Austria. 1601. Hardy herbaceous.

— *glastifo'lia* (wood-leaved). 1. White. June. Syria. 1823. Hardy annual.

PENE'A. (Named after *P. Pena*, a German botanist. Nat. ord., *Sarcocolads* [Penæaceæ]. Linn., 4-*Tetrandria* 1-*Monogynia*.)

Greenhouse evergreens, from the Cape of Good Hope, and red-flowered, except where otherwise mentioned. Cuttings of stubby side-shoots in summer, in sand, under a bell-glass; sandy peat and a little charcoal. Winter temp., 40° to 45°.

P. fruticulo'sa (small-shrubby). 1. June. 1822.

— *imbrica'ta* (imbricated). Pink. June. 1824.

— *laterifo'ra* (side-flowering). 1. June. 1825.

— *margin'a'ta* (bordered). 1½. June. 1816.

— *mucron'a'ta* (pointed-leaved). 2. Yellow. June. 1787.

— *myrtoi'des* (myrtle-like). 2. June. 1816.

P. sarcocolla (thick-necked). 1. June. 1825.
— *squamosa* (scaly). 1. June. 1787.

PENNYROYAL. *Me'ntha pule'gium*.

PENTADE'SMA. (From *pente*, five, and *desma*, a bundle; referring to the disposition of the stamens. Nat. ord., *Guttifera* [Clusiaceæ]. Linn., 18. *Polyadelphia* 2-*Polyandria*. Allied to *Garcinia*.)

Stove evergreen tree. Cuttings of ripe shoots in sand, under a bell-glass, and in bottom-heat; fibry loam and sandy peat. Winter temp., 60°; summer, 60° to 90°.

P. butyra'cea (butter-and-tallow-tree). 30. November. Sierra Leone. 1822.

PENTA'PETES. (From *pente*, five, and *petalon*, a petal; five petals in the flower. Nat. ord., *Byttneriads* [Byttneriaceæ]. Linn., 16-*Monadelphia* 7-*Dodecandria*. Allied to *Dombeya*.)

Stove, scarlet-flowered plants, flowering in July. Cuttings of half-ripened shoots in sand, under a glass, in moist heat; also by seeds in a hotbed, in spring; fibry loam and leaf-mould. Stove temperatures.

P. ovata (egg-leaved). 2. New Spain. 1805.
— *phœnicea* (scarlet). 2. India. 1690.

PENTARA'PHIA. (From *pente*, five, and *raphis*, a needle; alluding to the form of the open calyx. Nat. ord., *Gesnereworts* [Gesneraceæ]. Linn., 14-*Didynamia* 2-*Angiospermia*.)

A warm greenhouse plant. For cultivation, see *GESNERA*.

P. Cuben'sis (Cuban). 2. Scarlet. July. Cuba. 1854.

PENTAS. (From *pente*, five; referring to the number of petals and stamens. Nat. ord., *Cinchonads* [Cinchonaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*.)

Stove evergreens, from South Africa, with pink flowers. Cuttings of young shoots in sandy soil, in a hotbed; sandy loam and fibry peat. Winter temp., 45° to 58°; summer, 60° to 76°. Propagated in spring, in a hotbed, the plants so raised will bloom freely in the greenhouse during the summer.

P. car'nea (flesh-coloured). 1½. May. 1842.
— *parviflora* (small-flowered). 2. May.

PENTLA'NDIA. (Named after J. P. *Pentland, Esq.*, consul-general in Peru. Nat. ord., *Amariyllids* [Amariyllidaceæ]. Linn., 6-*Hexandria* 1-*Monogynia*.)

Half-hardy Peruvian bulbs; offsets; sandy loam, peat, and leaf-mould; require protection, or lifting out of the ground in winter.

P. minima (red-lead-coloured). 1. Red. September. 1836.

— — *lacunosa* (pitted). 1. Red. September. 1836.

— — *Sulina'nica* (Sulivan's). 1. Orange. March. 1839.

PENTSTE'MON. (From *pente*, five, and *stemon*, a stamen; four fertile and one

abortive stamen. Nat. ord., *Figworts* [Scrophulariaceæ]. Linn., 14-*Didynamia* 2-*Angiospermia*. Allied to *Chelone*.)

Seeds sown in a hotbed, in spring, the plants will bloom in the flower-garden the same summer; division of the plant in spring, as growth commences; cuttings of the young shoots any time in spring, summer, or autumn, under a hand-light, in sandy soil; sandy loam and leaf-mould. *Gentianoides* and its varieties, *coccinea* and *alba*, require a little protection in winter, when north of London; a few fir-boughs and some moss among the plants will generally be sufficient; but, to make sure, a few cuttings should be kept over the winter in a cold pit.

HALF-HARDY HERBACEOUS.

P. atro-purpureum (dark purple). 1½. Dark purple. July. Mexico. 1827.

— *azurum* (blue-flowered). ½. Blue. June. Mexico. 1848.

— *baccharifolius* (baccharis-leaved). 1½. Crimson. August. Texas. 1851.

— *campanulatum* (bell-flowered). 1½. Lilac, purple. June. Mexico. 1794.

— *Cobæa* (Cobæa-flowered). 2½. Pale purple. Texas. 1835.

— *Gentianoides* (Gentian-like). 4. Purplish-blue. July. Mexico. 1846.

— *Hartwegii* (Hartweg's). 2½. Double purple. June. Mexico. 1825.

— — *diaphanum* (transparent). 2½. Rose. Scarlet. July. Mexico. 1843.

— *Kunthii* (Kunth's). 1½. Purple. Mexico. 1826.

— *minutus* (vermilion). 1. Vermilion, rose. July. Mexico. 1846.

— *pulchellum* (pretty). 1½. Lilac. June. Mexico. 1827.

— *roseum* (rosy). 1½. Rose. Mexico. 1845.

— *Wrightii* (Mr. Wright's). 2. Rose. June. Texas. 1850.

HARDY HERBACEOUS.

P. acuminatum (pointed-leaved). Purple. July. N. Amer. 1827.

— *albidum* (whitish). ¾. White. July. Missouri. 1823.

— *angustifolium* (narrow-leaved). 1½. Lilac, purple. August. Louisiana. 1811.

— *argutum* (neat). 3. Blue. Columbia. 1825.

— *attenuatum* (wasted). Cream. July. N. Amer. 1827.

— *breviflorum* (short-flowered). 2. White, pink. September. California.

— *confertum* (crowded-flowered). 2. Pale yellow. July. N. Amer. 1827.

— *crassifolium* (thick-leaved). 1. Blue. June. N. Amer.

— *dentatum* (blasted). 1. Cream. N. Amer. 1827.

— *diffusum* (spreading). 1½. Purple. September. N. Amer. 1826.

— *digitalis* (foxglove-like). 1½. White. August. Arkansas. 1824.

— *erianthum* (woolly-anthered). ½. Purple. August. Louisiana. 1811.

— *glaberrimum* (smoothest). 2. Blue. Columbia. 1835.

— *glabrum* (smooth). 1½. Dark purple. August. Louisiana. 1811.

— *glandulosum* (glanded). 2. Pale blue. June. N. Amer. 1827.

— *glau'cum* (milky-green). 1. Pale lilac. July. N. Amer. 1827.

— *Gordonii* (Gordon's). 1½. Sky blue. June. Rocky Mountains. 1845.

- P. gracilis* (slender). 1. Blue. August. N. Amer. 1824.
 — *grandiflorum* (large-flowered). Purple. July. N. Amer. 1811.
 — *heterophyllum* (various-leaved). 1½. Red. July. California. 1834.
 — *hirsutum* (narrow-leaved-hairy). 1. Pale purple. August. N. Amer. 1758.
 — *lavigatum* (smooth). 2. Lilac. August. N. Amer. 1776.
 — *Mackayinum* (Sir W. Mackay's). 1. Purple, yellow. August. Ohio. 1834.
 — *Murrayinum* (Murray's, Scarlet). 3. Scarlet. August. St. Felipe. 1835.
 — *ovatum* (egg-leaved). 4. Blue. July. N. Amer. 1826.
 — *procerum* (tall). 1. Purple. July. N. Amer. 1827.
 — *pruinatum* (frosted). 1. Blue. June. N. Amer. 1827.
 — *pubesces* (broad-leaved-downy). 1½. Pale purple. August. N. Amer. 1758.
 — *Richardsonii* (Richardson's). 1½. Dark purple. July. Columbia. 1825.
 — *Scouleri* (Scouler's). 3. Purple. May. N. Amer. 1827.
 — *speciosum* (showy). 3. Blue. August. N. Amer. 1827.
 — *staticifolium* (statice-leaved). 1½. Lilac. June. California. 1833.
 — *triphyllum* (three-leaved). 1½. Pale red. July. California. 1827.
 — *venustum* (graceful). 2. Purple. June. N. Amer. 1827.

PEPPER. *Piper*.PEPPERMINT. *Me'ntha piperita*.PEPPER VINE. *Ampelopsis bipinnata*.PEPPERWORT. *Lepidium*.

PERENNIAL. A plant of any kind that lives for more than two years.

PERESKIA. Barbadoes Gooseberry. (Named after *Pieresk*, a French patron of botany. Nat. ord., *Indian Figs* [Cactaceæ]. Linn., 12-Icosandria 1-Monogynia. Allied to Cactus.)

Stove succulents. Cuttings in sandy loam, in heat, at almost any time; sandy loam, lime-rubbish, and a little peat and old cow-dung. Winter temp., 40° to 55°; summer, 60° to 80°.

- P. aculeata* (prickly). 5. White. October. W. Ind. 1696.
 — *Bleio* (Bleo). 5. Pale red. November. Mexico. 1827.
 — *crassicaulis* (thick-stemmed). Mexico. 1838.
 — *grandiflora* (large-flowered). Red. Mexico. 1838.
 — *grandifolia* (large-leaved). 3. Brazil. 1818.
 — *grandispina* (large-spined). Mexico. 1818.
 — *longispina* (long-spined). 4. S. Amer. 1808.
 — *Petitache* (Petitache). Mexico. 1838.
 — *portulacaefolia* (portulaca-leaved). 3. Purple. W. Ind. 1820.

PERGULARIA. (From *pergula*, trellis-work; referring to its quick climbing growth. Nat. ord., *Asclepiads* [Asclepiadaceæ]. Linn., 5-Pentandria 2-Digynia. Allied to *Stephanotis*.)

Stove evergreen climbers. Cuttings of firm side-shoots in sand, under a glass, and in bottom-heat; fibry loam, sandy peat, leaf-mould, and dry cow-dung. Winter temp., 55° to 65°; summer, 60° to 85°.

- P. minor* (smaller). 8. Yellow, green. June. E. Ind. 1790.
 — *odoratissima* (sweetest-scented). 15. Green. June. E. Ind. 1784.
 — *sanguinolenta* (bloody). 6. Green, yellow. July. Sierra Leone. 1822.

PERILO'MA. (From *peri*, around, and *loma*, a margin; referring to the membranous border of the fruit. Nat. ord., *Labiates* [Lamiaceæ]. Linn., 14-Didynamia 2-Angiospermia. Allied to *Scutellaria*.)

Half-hardy evergreen shrub. Cuttings of young shoots in sand, under a glass, in April; sandy peat. Winter temp., 40° to 45°.

- P. ocymoides* (basil-like). 3. Purple. August. Peru. 1829.

PERILOCA. (From *periploke*, an intertwining; referring to the habit of the plant. Nat. ord., *Asclepiads* [Asclepiadaceæ]. Linn., 5-Pentandria 2-Digynia.)

Hardy deciduous twiners. Layers and cuttings under a glass, during summer and autumn. Any good soil will do. *Græca* will soon cover an arbour or wall. The tender species are not worth culture.

- P. angustifolia* (narrow-leaved). 6. Purplish. South Europe. 1800.
 — *Græca* (Grecian). 10. Brown. July. Syria. 1597.

PERISTE'RIA. Dove Flower. (From *peristera*, a dove; dove-like appearance of the column. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-Gynandria 1-Monandria. Allied to *Acineta*.)

Stove orchids. Division, or separating the pseudo-bulbs, as growth commences. See ORCHIDS.

- P. Barkeri* (Barker's). 2. Yellow. June. Mexico. 1837.
 — *cerina* (waxen). 1. Yellow. June. Spanish Main. 1835.
 — *elata* (lofty. Dove-plant). 4. White. July. Panama. 1826.
 — *expansa* (broad). White. July. Panama. 1839.
 — *fulva* (tawny). 2. Tawny-brown spots. June. Venezuela. 1842.
 — *guttata* (spotted). ½. Yellow, purple. August. S. Amer. 1837.
 — *Humboldtii* (Baron Humboldt's). 2. Red. March. Peru. 1841.
 — *lentiginosa* (speckled). Yellow. May. Guiana. 1837.
 — *pendula* (weeping). 1. White-spotted. September. Panama.
 — *Stapelioides* (Stapelia-like). Yellow, brown. May. Spanish Main. 1839.

PERITOMA. See CLEOME.

PERIWINKLE. *Vinca*.

PERNETTYA. (Named after *Don Per-netty*, author of "A Voyage to the Falkland Islands." Nat. ord., *Heathworts* [Ericaceæ]. Linn., 10-Decandria 1-Monogynia. Allied to *Gaultheria*.)

Hardy evergreen, white-flowered shrubs. Seeds and layers in spring; peat border; requires similar treatment to the tenderer Azaleas and Rhododendrons.

P. angustifolia (narrow-leaved). 2. June. Valdivia. 1834.

— *Cummingii* (Cumming's). May. Mexico.

— *mucronata* (pointed-leaved). 6. May. Magellan. 1828.

— *pumila* (dwarf). 4. June. Magellan. 1825.

— *pilosissima* (downy). April. Mexico. 1839.

— *prostrata* (prostrate). May.

PERSEA. Avocado or Alligator Pear. (Name of a tree from Theophrastus. Nat. ord., *Laurels* [Lauraceæ]. Linn., 9-*Enneandria* 1-*Monogynia*.)

Stove evergreen tree. Layers of ripened shoots in autumn; cuttings of firm shoots in May, in sand, under a bell-glass, and in bottom-heat; sandy loam and fibry peat. Winter temp., 56° to 60°; summer, 60° to 90°.

P. gratissima (most grateful). 40. Green. W. Ind. 1739.

PERSIAN SUN'S EYE. *Tu'lipa'o'culus so'lis*.

PERSICA. Peach. (From *Persia*, its supposed native place. Nat. ord., *Almond-worts* [Amygdalaceæ]. Linn., 12-*Icosandria* 1-*Monogynia*.)

Should be united to *Amygdalus*. See **NECTARINE** and **PEACH**. All bloom in April.

P. laevis (smooth. *Nectarine*). 15. Red. *Persia*. 1562.

— *vulgaris* (common. *Peach*). 15. Red. *Persia*. 1562.

— *alba* (white). 14. White. *Persia*.

— *compressa* (flat-fruited). 15. Red.

— *fo're-ple'no* (double-flowered). 15. Red. *Persia*.

— *fo'tis variega'tis* (variegated-leaved). 15. *Persia*.

— *fru'cto ple'no* (double-fruited). 15. Red. China. 1845.

— *Hispanica* (Spanish). White. Spain. 1847.

— *pendula* (drooping). White. 1842.

— *sanguinea ple'na* (double-red). 15. Red. China. 1845.

PERU BALSAM-TREE. *Myrospe'rnum*.

PERUVIAN BARK. *Cincho'na*.

PERUVIAN DAFFODIL. *Isme'ne*.

PERUVIAN MASTIC. *Schi'nus*.

PESOME'RIA. (From *pipto-pesi*, to fall, and *meros*, a part; the sepals fall off soon after expansion. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-*Gynandria* 1-*Monandria*. Allied to *Bletia*.)

Stove orchid. Division in spring; sandy, fibry peat, and a little fibry loam, well-drained, in pots; or in baskets, surrounded by the above, with an addition of sphagnum moss. See **ORCHIDS**.

P. tetrago'na (four-cornered-stem). 2. Brown. December. Mauritius. 1837.

PETALA'CITE. (From *petalon*, a petal, and *acte*, a ray. Nat. ord., *Compositæ* [Asteraceæ]. Linn., 19-*Syngenesia* 2-*Superflua*. Allied to *Antennaria*.)

Greenhouse evergreen shrubs, from Cape of Good Hope. Cuttings of young side-shoots, getting firm at the base, in sand, under a bell-glass, in May; sandy loam and fibry peat, with pieces of charcoal, and well-drained pots. Winter temp., 38° to 46°.

P. bicolor (two-coloured). Purple, white. May. 1816.

— *coronata* (crowned). White. May. 1816.

PERSOO'NIA. (Named after C. H. Persoon, a distinguished botanist. Nat. ord., *Proteads* [Proteaceæ]. Linn., 4-*Tetrandria* 1-*Monogynia*.)

Greenhouse evergreen shrubs, from New South Wales, yellow-flowered, except where otherwise mentioned. Cuttings of ripened shoots in sand, under a bell-glass, in spring, and kept in a temperate pit until roots are formed; fibry loam and sandy peat. Winter temp., 38° to 45°; summer, 60°; a little shaded.

P. brevifolia (short-leaved). 1840.

— *chamaepitys* (ground-pine). 4. June. 1824.

— *ferruginea* (rusty). 3. Yellow, red. June. 1823.

— *flexifolia* (bent-leaved). 2. June. 1824.

— *Fraseri* (Fraser's).

— *heterophylla* (various-leaved). Swan River.

— *hirsuta* (hairy). 4. June. 1800.

— *juniperina* (juniper-like). 4. June. 1826.

— *lanceolata* (spear-head-leaved). 4. June. 1791.

— *latifolia* (broad-leaved). 4. June. 1795.

— *lucida* (shining). June. 1824.

— *molli* (soft). 3. July. 1826.

— *myrtilloides* (myrtillus-like). White. 1837.

— *nutans* (nodding). 4. 1824.

— *palida* (pale). Orange. July. 1824.

— *pinifolia* (pine-leaved). 4. June. 1822.

— *pruinosa* (frosty). 3. June. 1824.

— *salicina* (willow-leaved). 7. Pink. July. 1795.

— *scurva* (scurfy). 4. June. 1824.

— *spatulata* (spatulate-leaved). June. 1824.

— *tenuifolia* (thin-leaved). June. 1822.

PERYME'NIUM. (Meaning not explained. Nat. ord., *Compositæ* [Asteraceæ]. Linn., 19-*Syngenesia* 2-*Superflua*.)

Cuttings, taken from the points of shoots, or the firm side-shoots; sandy loam and a little peat. Winter temp., 38° to 48°.

P. Barclayianum (Barclay's). Copper. July. Mexico. 1830.

PETALIDIUM. (From *petalon*, a petal; referring to the conspicuous flowers. Nat. ord., *Acanthads* [Acanthaceæ]. Linn., 14-*Didynamia* 2-*Angiospermia*. Allied to *Ruellia*.)

Stove evergreen climber. Cuttings of shoots in April or May, in sandy loam, in a hotbed; sandy, fibry loam, and a little peat. Winter temp., 48° to 60°; summer, 60° to 80°.

P. Barlerioides (Barleria-like). 4. White. June. India.

PETALOSTEMON. (From *petalon*, a petal, and *stemon*, a stamen; stamens joined to the bottom of the petals. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 16-*Monadelphia* 2-*Pentandria*. Allied to *Psoralea*.)

Hardy North American herbaceous perennials. Division in spring; sandy loam, and a little peat or leaf-mould.

P. caudatum (white). 1. White. July. 1811.

— *carneum* (flesh-coloured). 4. Flesh. July. 1811.

— *corymbosum* (corymbed). 14. White. August. 1811.

P. villosum (shaggy). Red. July. 1826.
— *violaceum* (violet). 1. Violet. August. 1811.

PETIVERIA. (Named after J. Petiver, an English naturalist. Nat. ord., *Petiveriads* [Petiveriaceæ]. Linn., 7-*Heptandria* 1-*Monogynia*.)

Stove evergreen, West Indian, white-flowered shrubs. Cuttings of half-ripened shoots in May, in sand, under a bell-glass, and in a sweet bottom-heat; peat and sandy loam. Winter temp., 48° to 60°; summer, 60° to 85°.

P. allia'cea (garlic-scented). 2. June. 1759.
— *octandra* (eight-stamened). 2. June. 1737.

PETREA. (Named after Lord Petre. Nat. ord., *Verbenas* [Verbenaceæ]. Linn., 14-*Didynamia* 2-*Angiospermia*. Allied to *Duranta*.)

Stove evergreen trees. Cuttings of short, firm side-shoots in summer, in sand, under a bell-glass, and in bottom-heat; rich, sandy loam. Winter temp., 60°; summer, 60° to 90°.

P. erecta (erect). 10. Blue. S. Amer. 1823.
— *rugosa* (wrinkly). 10. Blue. Caraccas. 1824.
— *Stapel'ia* (*Stapelia*-flowered). 20. Lilac. June. S. Amer. Twiner.
— *volut'ibilis* (twisting). 20. Purple. July. Vera Cruz. 1738. Twiner.

PETROCALLIS. (From *petros*, a rock, and *kalos*, beautiful; pretty rock-plant. Nat. ord., *Crucifers* [Brassicaceæ]. Linn., 15-*Tetradynamia*. Allied to *Draba*.)

Hardy herbaceous perennial. Division in spring, cuttings of shoots under a hand-light, in summer; sandy loam; protect with an evergreen branch in severe weather.

P. Pyrena'ica (Pyrenean). $\frac{1}{2}$. Pink. May. Pyrenees. 1759.

PETROPHILA. (From *petros*, a rock, or stone, and *phileo*, to love; referring to their natural habitation. Nat. ord., *Proteads* [Proteaceæ]. Linn., 4-*Tetrandria* 1-*Monogynia*. Allied to *Protea*.)

Greenhouse, evergreen, white-flowered, New Holland shrubs. Cuttings of ripe shoots in spring, under a bell-glass, and placed in a cold frame; fibry, rather tenacious loam, and a little peat. Winter temp., 38° to 48°.

P. brevifo'lia (short-leaved).
— *fastigia'ta* (pyramidal). 5. July. 1820.
— *filifo'lia* (thread-leaved). 5. June. 1824.
— *glandu'igera* (gland-bearing).
— *heterophy'lia* (various-leaved).
— *junceifo'lia* (rush-leaved).
— *peduncula'ta* (long-flower-stalked). 4. July. 1824.
— *pulche'lia* (neat). 5. July. 1790.
— *rigida* (stiff). 5. June. 1823.
— *teretifo'lia* (round-leaved). 4. July. 1824.
— *tri'fida* (three-cleft). 4. July. 1820.

PETTYWHIN. *Geni'sta A'nglica*.

PETUNGA. (Its Indian name. Nat. ord., *Cinchonads* [Cinchonaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*.)

Stove evergreen shrub. Cuttings of half-ripened shoots in sand, under a bell-glass, and in a slight bottom-heat; sandy loam and fibry peat. Winter temp., 56° to 60°; summer, 60° to 80°.

P. Roxburghia'na (Dr. Roxburgh's). 3. White. May. E. Ind. 1818.

PETUNIA. (From *petun*, Brazilian name for tobacco, to which *Petunia* is allied. Nat. ord., *Nightshades* [Solanaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*.)

Half-hardy herbaceous perennials. Seeds sown in a hotbed, in March; seedlings pricked out, and finally transplanted into the borders in May; cuttings of the points of shoots, or small side-shoots, in spring, in heat, and in summer and autumn without heat, except being covered with glass; scarcely any of them will stand frost. It is best to keep the plants in a cold, dry pit during the winter; for growing, light, rich, sandy loam. Temp., not below 38° in winter.

P. acuminat'a (pointed-leaved). 2. White. July. Chili. 1827.

— *interme'dia* (intermediate). 1. Yellow, purple. August. Buenos Ayres. 1832.

— *nyctaginifo'ra* (marvel-of-Peru-flowered). 4. White. August. S. Amer. 1823.

— *phæni'cea* (purple-flowered). 2 $\frac{1}{2}$. Crimson, purple. June. Buenos Ayres. 1831.

— *viol'acea* (violet-coloured). Rose, purple. August. Buenos Ayres. 1831.

PEUMUS. Same as *Salpia'nthus fra'grans*.

PEYROUSIA, properly *Ovieda*. (Named after La Peyrouse, the French navigator. Nat. ord., *Irids* [Iridaceæ]. Linn., 3-*Triandria* 1-*Monogynia*.)

Greenhouse bulbs, from Cape of Good Hope, and blue-flowered, except where otherwise specified. For culture, see IXIA.

P. aculeat'a (prickly). $\frac{1}{2}$. Blue, yellow. June. 1825.

— *a'nceps* (two-edged). $\frac{1}{2}$. September. 1824.

— *corymbo'sa* (corymbed). $\frac{1}{2}$. May. 1791.

— *Fabri'cii* (Fabricius's). $\frac{1}{2}$. May. 1825.

— *falcu'ta* (sickle-leaved). $\frac{1}{2}$. May. 1825.

— *fascicu'la'ta* (fascicled). $\frac{1}{2}$. May. 1825.

— *fissifo'lia* (cleft-leaved). $\frac{1}{2}$. Violet. August. 1809.

— *silenoi'des* (catchfly-like). $\frac{1}{2}$. Violet. June. 1822.

PHACA. (Name of a plant mentioned by Dioscorides. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 17-*Diadelphia* 4-*Decandria*. Allied to *Astragalus*.)

Hardy herbaceous perennials. Seeds sown in a little heat, in April, and seedlings planted out, will bloom the same season; many will do so if sown in good places in the open air; division of the roots in spring; cuttings under a hand-light, in summer; sandy loam. *Cane'scens* requires protection from frost in winter.

P. alpi'na (alpine). 2. Pale yellow. July. Austria. 1759.

— — *Dahu'rica* (Dahurian). Pale yellow. Dahuria. 1820.

— *arena'ria* (sand). $\frac{1}{2}$. Cream. July. Siberia. 1796.

— *astragu'lina* (astragalus-like). 1. White, blue. July. Scotland.

— *australi's* (southern). $\frac{1}{2}$. Pale purple. May. South Europe. 1779.

— *Bæ'tica* (Bætic). 4. White. May. Spain. 1640.

— *cane'scens* (hoary). 1. Pale rose. July. Valparaiso. 1831.

— *densifo'lia* (crowded-leaved). 1. Red. July. California. 1822.

— *exaltat'a* (tall). 1. Yellow. July. Altai. 1828.

— *frigi'da* (cold). 1. Cream. July. Austria. 1795.

- P. glabra* (smooth). 1. White. July. France. 1818.
 — *Lappo'nica* (Lapland). 4. Purple. July.
 North Europe. 1816.
 — *luttea* (yellow). 1. Yellow. July. Siberia. 1827.
 — *oroboides* (orobus-like). 1. Purple. July.
 Norway. 1820.
 — *triangul'aris* (three-cornered). 1. Blue. July.
 Siberia. 1824.

PHACE'LIA. (From *phakelos*, a bundle; the disposition of the flowers. Nat. ord., *Hydrophylls* [*Hydrophyllaceæ*]. Linn., 5-Pentandria 1-Monogynia. Allied to *Eutoca*.)

Annuals, by seeds; perennials, by seed and division in April; sandy, common garden-soil.

HARDY ANNUALS.

- P. congesta* (crowded-racemed). 1½. Purple, blue. June. Texas. 1835.
 — *fimbri'ata* (fringed). Lilac, white. N. Amer.
 — *tanacetifolia* (tansy-leaved). 2. Blue. June. California. 1832.
 — *vinifolia* (vine-leaved). 1½. Light blue. September. Texas. 1834.

HARDY HERBACEOUS.

- P. A'idea* (Aldea). 1½. Pink. June. Peru. 1824.
 — *bipinnatifida* (doubly-leafleted). 2. Blue. June. N. Amer. 1824.
 — *circinata* (rounded). 1½. Pink. June. Magellan. 1817.

PHÆDRANA'SSA. (From *phaidros*, gay, and *anassa*, queen. Nat. ord., *Amaryllids* [*Amaryllidaceæ*]. Linn., 6-Hexandria 1-Monogynia. Allied to *Coburgia*.)

Peruvian bulbs, requiring the protection of a greenhouse, and succeed best in a strong, yellow loam, like *Coburgia*; they rest in winter, or may be made to rest in summer. For culture, see *COBUR'GIA*.

- P. chlora'era* (greenish-yellow). 1. Crimson, green. December. 1844.
 — *obtu'sa* (blunt). December. 1844.

PHENO'COMA. (From *phainos*, bloody, and *kome*, hair; colour of involucreum. Nat. ord., *Compositæ* [*Asteraceæ*]. Linn., 19-Syngenesia 2-Superflua. Allied to *Helichrysum*.)

Greenhouse evergreen shrubs. Cuttings of young side-shoots, getting firm at the base, in sand, over peat, in pots three-parts filled with drainage, under a bell-glass, and kept near the glass of a house or pit in summer; sandy peat and a little fibry loam. Winter temp., 40° to 48°.

- P. prolifera* (proliferous). 4. Crimson. September. Cape of Good Hope. 1789.

PHA'IUS. (From *phaios*, shining; referring to the flowers. Nat. ord., *Orchids* [*Orchidaceæ*]. Linn., 20-Gynandria 1-Monandria. Allied to *Bletia*.)

Stove orchids. Division of the pseudo-bulb-like shoots, as growth commences, in spring; grown in pots. See *ORCHIDS*.

- P. albus* (white). 2. White. July. Sylhet. 1836.
 — *angustifolius* (narrow-leaved). Green. July. Trinidad. 1821.
 — *bicolor* (two-coloured). 2. Maroon, white. July. Ceylon.
 — *callosus* (thick-tipped). Reddish-brown. March. Java. 1848.

- P. fl'abus* (yellow). Yellow. India. 1837.
 — *grandifolius* (large-leaved). White, brown. April. China. 1778.
 — *intermedius* (intermediate). India. 1839.
 — *maculat'us* (spotted-leaved). 2. Yellow. June. Nepaul. 1823.
 — *Wall'chii* (Dr. Wallich's). 2. Orange, yellow. April. Khooseen. 1837.

PHALENO'PSIS. Butterfly-Plant. (From *phalaina*, a moth, and *opsis*, like; the appearance of these handsome flowers. Nat. ord., *Orchids* [*Orchidaceæ*]. Linn., 20-Gynandria 1-Monandria.)

Stove orchids, grown in baskets or on blocks. Pieces of offset shoots, kept dry at the base, for a day or two, before setting them growing. See *ORCHIDS*.

- P. amabilis* (lovely). 1½. White, pink. June. Manilla. 1836.
 — *longifolia* (long-leaved). White. Year. Manilla. 1842.
 — *rotundifolia* (round-leaved). White. Year. Manilla. 1837.
 — *grandifl'ora* (large-flowered). White, pink. September. Java. 1847.
 — *ro'sea* (rosy). 1½. Deep vermilion. Manilla. 1848.

PHA'LARIS. Canary Grass. (From *phalaros*, shining; referring to the shining seeds. Nat. ord., *Grasses* [*Graminaceæ*]. Linn., 3-Triandria 2-Digynia.)

P. Canariensis produces the Canary-seeds of commerce. Seeds; common soil.

- P. appendicul'ata* (appendaged). 1. June. Egypt. 1820.

- *Canariensis* (Canary). 2. July. Britain.
 — *commuta'ta* (changed). 1. June. Italy. 1823.

PHALEROCA'RPUS. This hardy evergreen creeper should have been added to *Gaultheria*.

- P. serpyllifolia* (wild-thyme-leaved). White. April. N. Amer. 1815.

PHALOCA'LLIS. (From *phalos*, a cone, *kallos*, beautiful; beautifully cone-crested. Nat. ord., *Irids* [*Iridaceæ*]. Linn., 3-Triandria 1-Monogynia. Allied to *Phylla*.)

Half-hardy Mexican bulb. The flower lasts only a few hours in the morning. Seeds and off-sets in spring; requires a little protection from wet and cold in winter; sandy loam and a little leaf-mould.

- P. plu'mbea* (lead-coloured). 1½. Lead-coloured. July. Mexico. 1837.

PHARBITIS. (From *pharbe*, colour; deep and varied colours of the flowers. Nat. ord., *Bindweeds* [*Convolvulaceæ*]. Linn., 5-Pentandria 1-Monogynia. Allied to *Ipomœa*.)

For culture, see *IPOMœA*.

HARDY TWINING ANNUALS.

- P. barb'ata* (bearded). September. Virginia. 1729.
 — *barb'igera* (beard-bearing). Blue. September. N. Amer.
 — *hederacea* (ivy-leaved). Blue. August. N. Amer. 1729.

GREENHOUSE TWINING ANNUALS.

- P. cuspidata* (sharp-pointed). Purple. July. Peru. 1732.
 — *Dillenii* (Dilleniuss's). Blue. June. Ethiopia.
 — *diversifolia* (various-leaved). 5. Blue. June. Mexico. 1836.
 — *nil* (nil). Blue. August. America. 1597.
 — *punctata* (dotted). Purple, violet. August. India.

STOVE TWINING ANNUALS.

- P. hispida* (bristly). White, purple. August. E. Ind. 1629.
 — *scabra* (scurfy). White. September. 1823.
 EVERGREEN TWINERS.
P. cathartica (purgative). Blue, purple. September. Mexico. 1848. Stove.
 — *cerulea* (blue). Pale blue. July. E. Ind. 1820. Hardy.
 — *Learii* (Lear's). Blue. June. Buenos Ayres. 1835. Stove deciduous.
 — *ostriana* (purple). 20. Purple. July. Cuba. 1840. Stove.
 — *tyrianthina* (purple). Purple. October. Mexico. 1838. Stove deciduous.
 — *varia* (variable). Blue, violet. September. 1816. Stove.

PHASEOLUS. Kidney Bean. (From *phaselus*, a little boat; fancied resemblance of the pods. Nat. ord., *Leguminous Plants* [Fabiaceæ]. Linn. 17-*Diadelphia* 4-*Decandria*.)

For culture of annuals, see KIDNEY BEANS; perennials, by division and cuttings, and usual greenhouse or stove culture.

STOVE DECIDUOUS TWINERS.

- P. Caracalla* (Caracalla). 1½. Lilac. August. India. 1690.
 — *lobatus* (lobed-leaved). 6. Yellow. September. Buenos Ayres. 1843. Evergreen.
 — *speciosus* (showy). 6. Scarlet. July. Orinoco. 1820.

GREENHOUSE DECIDUOUS TWINER.

- P. sylvestris* (wood). 6. Scarlet. July. Mexico. 1825.

HARDY DECIDUOUS TWINERS.

- P. multiflorus* (many-flowered). 12. Scarlet. July. S. Amer. 1633.
 — *albiflorus* (white-flowering). 12. White. August. S. Amer. 1633.
 — *perennis* (perennial). 3. Dark purple. July. Carolina. 1824.
 — *vulgaris* (common). 1. White. July. India. 1597.
 — *fasciatus* (banded-seeded). White. July. India. 1597.
 — *variegatus* (variegated-seeded). White. July. India. 1597.

TWINING ANNUALS.

- P. aconitifolius* (aconite-leaved). 2. Pink. July. E. Ind. 1731.
 — *amœnus* (pleasing). 4. Red. July. Society Islands. 1820.
 — *chrysanthos* (golden-flowered). 3. Yellow. July.
 — *gonospermus* (angled-seeded). 4. Pale violet, white. July.
 — *heterophyllus* (variable-leaved). 4. Red. June. Mexico. 1820.
 — *lathyroides* (lathyrus-like). 2. Scarlet. July. Jamaica. 1786.
 — *microspermus* (small-seeded). 1. Dark purple. June. Cuba. 1825.
 — *semi-erectus* (half-erect). 2. Red. July. W. Ind. 1781.
 — *torosus* (uneven). 4. Violet. July. Nepaul. 1818.
 — *violaceus* (violet). 3. Violet. July. Africa. 1800.
 — *Xuarezi* (Xuarez's). 4. Red. July. S. Amer. 1818.

PHEASANT'S EYE ADONIS. *Adonis autumnalis*.

PHEBA'LIUM. (From *phibale*, a myrtle; the appearance of the plants. Nat. ord., *Rueworts* [Rutaceæ]. Linn., 10-*Decandria* 1-*Monogynia*. Allied to *Crowea*.)

Greenhouse evergreen, yellow-flowered, New Holland shrubs. Cuttings of half-ripened shoots, or short, stumpy side-shoots, in sand, under a bell-glass, in May; sandy peat, with a third portion of fibry loam. Winter temp., 38° to 46°.

- P. aureum* (golden). 6. May. 1823.
 — *elatum* (tall). 10. May. 1825.
 — *lachnoides* (lachnea-like). 3. May. 1824.
 — *lineare* (narrow-leaved). 3. June. 1825.
 — *salicifolium* (willow-leaved). 3. June. 1825.
 — *squamulosum* (scaly). 2½. May. 1824.

PHILADELPHUS. Syringa, or Mock Orange. (Athenian name for a shrub. Nat. ord., *Syringas* [Philadelphaceæ]. Linn., 12-*Icosandria* 1-*Monogynia*. Allied to *Deutzia*.)

Hardy deciduous, white-flowered shrubs. Layers and suckers, and dividing the plant in spring; common soil; deep loam is best. Many of the species would present a beautiful appearance if grown as single dwarf specimen trees, with a clean stem.

- P. coronarius* (garland). 8. May. South Europe. 1596.
 — *fiore-pleino* (double-flowered). 8. May. South Europe.
 — *foliis variegatis* (variegated-leaved). 8. May. South Europe.
 — *nanus* (dwarf). 2. May.
 — *vulgaris* (common). 8. May.
 — *floribundus* (bundle-flowered). 6. June. N. Amer.
 — *Gordonianus* (Gordon's). 10. July. N. Amer.
 — *grandiflorus* (large-flowered). 6. June. Carolina. 1811.
 — *hirsutus* (hairy). 3. June. N. Amer. 1820.
 — *inodorus* (scentless). 4. June. Carolina. 1738.
 — *latifolius* (broad-leaved). 4. June. N. Amer.
 — *laxus* (loose-growing). 4. June. N. Amer. 1830.
 — *Lewisii* (Lewis's). 6. June. N. Amer. 1739.
 — *Mexicanus* (Mexican). 2. June. Mexico. 1839.
 — *speciosus* (showy). 10. June. N. Amer.
 — *tomentosus* (downy). 3. June. Nepaul. 1822.
 — *triflorus* (three-flowered). 4. Himalaya.
 — *verrucosus* (warted). 4. June. N. Amer.
 — *Zeyheri* (Zeyher's). 3. June. N. Amer.

PHILE'SIA. (From *philesios*, lovely. Nat. ord., *Sarsaparillas* [Smilacææ]. Linn., 6-*Hexandria* 1-*Monogynia*. Allied to *Lapageria*.)

This evergreen is probably hardy. Prune after it has bloomed early in the summer. Propagated by cuttings. Peat and loam in equal proportions; requires to be kept moist.

- P. buxifolia* (box-leaved). 3. Pink. June. Valdivia. 1853.

PHILIBERTIA. (Named of J. O. Philibert, a botanical author. Nat. ord., *Asclepiads* [Asclepiadaceæ]. Linn., 5-*Pentandria* 2-*Digynia*. Allied to *Pergularia*.)

Stove, yellowish-white-flowered, evergreen

twiners, from Buenos Ayres. Cuttings of firm side-shoots in sand, under a bell-glass, in May, and kept in a cold pit until struck; sandy loam and fibry peat, well-drained. Winter temp., 40° to 45°; summer, 60° to 75°.

P. gracilis (slender). 6. June. 1836.

— *grandiflora* (large-flowered). June. 1836.

PHILLYREA. (From *phyllon*, a leaf; literally, a leafy plant, the flowers being inconspicuous. Nat. ord., *Oliveworts* [Oleaceæ]. Linn., 2-*Diandria* 1-*Monogynia*.)

Of all our hardy evergreens the Phillyrea is the best adapted for growing as dwarf standards. All white-flowered, and natives of South of Europe. Layers in autumn; cuttings under a hand-light; seeds, after being mixed with soil in the rot-heap; good, common garden-soil.

P. angustifolia (narrow-leaved). 8. May. 1597.

— *bracteata* (forked). 8. May. 1597.

— *rosmarinifolia* (rosemary-leaved). 8. May. 1597.

— *laevis* (smooth-leaved). 15. May. 1597.

— *lanceolata* (spear-head-leaved). 8. June.

— *latifolia* (broad-leaved). 15. May. 1597.

— *ligustrifolia* (privet-leaved). 15. May. 1596.

— *media* (mediate). 15. May. 1597.

— *boxifolia* (box-leaved). 15. May. 1797.

— *obliqua* (twisted-leaved). 15. May. 1597.

— *oleaefolia* (olive-leaved). 15. May. 1597.

— *pendula* (drooping). 15. May. 1597.

— *spinosa* (spiny). June. 1597.

PHILODE'NDRON. (From *phileo*, to love; and *dendron*, a tree; referring to habit of the plants growing on trees. Nat. ord., *Arads* [Araceæ]. Linn., 21-*Monævia* 3-*Triandria*. Allied to *Caladium*.)

Stove rambling evergreens. Division of the roots; cuttings of short, stubby side-shoots in sand, under a bell-glass, in peat; rich, sandy loam and fibry pieces of peat. Winter temp., 55° to 60°; summer, 60° to 85°.

P. arborescens (tree-like). June. W. Ind. 1759.

— *crassinevium* (thick-ribbed). 20. Green, white. December. Brazil. 1835.

— *fragrantissimum* (most fragrant). 4. Red, white. March. Demerara. 1834.

— *grandifolium* (large-leaved). 6. White. March. Caracass. 1803.

— *tripartitum* (three-parted). White. Caracass. 1816.

PHILOTHE'CA. (From *philos*, smooth, and *theke*, a sheath; smooth tube of stamens. Nat. ord., *Rueworts* [Rutaceæ]. Linn., 16-*Monadelphia* 6-*Decandria*. Allied to *Crowea*.)

Greenhouse evergreen shrub. Cuttings of short young shoots, a little firm at the base, in sand, under a bell-glass, and placed in a cold frame in May; sandy loam and fibry peat. Winter temp., 40° to 45°.

P. australis (southern). 2. Pale red. April. N. S. Wales. 1822.

PHILYDRUM. (From *phileo*, to love, and *hydor*, water. Nat. ord., *Waterworts* [Philydraceæ]. Linn., 1-*Monandria* 1-*Monogynia*.)

Greenhouse biennial. Seeds in spring, in a warm

place, and moved to a colder when up; sandy loam and peat; does best in the greenhouse.

P. lanuginosum (woolly). 3. Yellow. June. China. 1801.

PHLEBO'DIUM. (From *phlebs*, a vein. Nat. ord., *Ferns* [Polypodiaceæ]. Linn., 24-*Cryplogamia* 1-*Filices*.)

Stove Ferns. See **FERNs**.

P. arcuatum (arcuate). 1. Yellow. May. Brazil. — *aurum* (golden). 3. Yellow. March. W. Ind. 1742.

— *decumanum* (tall). 5. Yellow. May. Brazil. 1818. — *elongatum* (lengthened). Brown. May. W. Ind. 1843.

— *lycopodioides* (club-moss-like). ‡. Brown, yellow. March. Jamaica. 1822.

— *nitidum* (shining). Brown, yellow. May. Honduras. 1844.

— *peruvianum* (struck). Brown, yellow. May. Brazil. 1841.

— *pulvinatum* (cushioned). Brown, yellow. May. Brazil. 1841.

— *sporodocarpium* (spore-fruited). 3. Brown, yellow. May. Mexico. 1842.

— *squamulosum* (scaly). Brown, yellow. May. Brazil. 1842.

PHLOGAC'NTHUS. (From *phlox*, a flame, and *akanthus*, the type of this Nat. ord. of *Acanthads* [Acanthaceæ], the flowers being flame-coloured. Linn., 2-*Diandria* 1-*Monogynia*. Allied to *Justicia*.)

Stove evergreen shrubs. For culture, see **JUS-TICIA**.

P. curviflorus (curved-flowered). 6. Red, yellow. June. Sylhet. 1839.

— *guttatus* (spotted). 1‡. Yellow-spotted. April. E. Ind. 1828.

— *thyrsiflorus* (thyrsé-flowered). Orange. May. E. Ind. 1812.

PHLO'MIS. (From *phlogmos*, a flame; down used for wicks. Nat. ord., *Lipworts* [Lamiaceæ]. Linn., 14-*Didynamia* 1-*Gymnospermia*. Allied to *Leonotis*.)

Perennials, seeds, divisions, and slips planted in spring and autumn; shrubs, by cuttings and slips, placed in the open air, in a shady place, or under a hand-light; shrubs requiring protection in winter, by cuttings under hand-lights, in summer; all good, mellow, well-drained soil.

HALF-HARDY HERBACEOUS, &c.

P. angustifolia (narrow-leaved). Cream. July. Levant. 1596. Evergreen.

— *crinita* (hair-bracted). 2. Pale brown. June. Spain. 1820.

— *floccosa* (flocky). 2. Yellow. August. Egypt. 1828. Evergreen.

— *Nisso'sii* (Nissolle's). 2. Yellow. June. Levant. 1757.

— *orientalis* (eastern). 3. Pale brown. July. South Europe. 1820.

HARDY EVERGREEN SHRUBS.

P. bicolor (two-coloured). Yellow, purple. June. Lybia. 1714.

— *ferruginea* (rusty). 2. Yellow, brown. June. Naples. 1823.

— *Cretica* (Cretan). 3. Yellow. June. Crete. 1820.

— *fruticosa* (shrubby. *Jerusalem Sage*). 2. Yellow. June. Spain. 1596.

- P. Ita'lica* (Italian). 2. Purple. July. Italy. 1661.
— lana'ta (woolly). 1½. Yellow. June. Candia. 1696.
— lychni'tes (lychnitis). 2. Yellow, brown. July. South Europe. 1658.
— purpu'rea (purple). 2. Purple. July. South Europe. 1661.

— visco'sa (clammy). Yellow. June. Levant.

HARDY HERBACEOUS.

- P. agra'ria* (field). Purplish. July. Siberia. 1830.
— alpi'na (alpine). 1. Purple. July. Siberia. 1802.
— Armeni'aca (Armenian). 1. Yellow. July. Armenia. 1834.
— Cashmeria'na (Cashmere). 2. Pale lilac. July. Cashmere.
— he'rba-ve'nti (wind-herb). 2. Red. August. South Europe. 1596.
— lacinia'ta (jagged-leaved). 3. Purple. July. Levant. 1731.
— lunari'folia (honesty-leaved). 3. Yellow. June. Levant. 1818.
— pu'ngens (stinging). 3. Brown. July. Armenia. 1820.
— Russellia'na (Russell's). 3. Brown. June. Levant. 1821.
— Sa'mia (Samian). 3. Purple. N. Africa. 1714.
— si'mplex (simple). Purple. May. Himalayas. 1838.
— tubero'sa (tuberous). 4. Purple. August. Siberia. 1759.

PHLO'X. (From *phlox*, flame; brilliancy of the flowers. Nat. ord., *Phlox-worts* [Polemoniaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*.)

Herbaceous perennials, natives of North America, except where otherwise mentioned. Divisions, and cuttings under a hand-light, in a shady place, in summer; sandy loam and leaf-mould; the low trailing ones are beautiful on knolls and rock-works. *Drummo'ndi* by seed sown the first week in April, in gentle heat.

HALF-HARDY.

- P. arista'ta* (awned). ½. White. April. Carolina. 1823.
— Florida'na (Florida). 1. Rose. April. 1834.
— specio'sa (showy). 1. Flesh. Columbia. 1826.

HARDY.

- P. acumina'ta* (pointed-leaved). 4. Pale purple. July. 1812.
— acutifo'lia (acute-leaved). 4. Purple. August. 1825.
— Canade'nsis (Canadian). 1. Blue. April. 1825.
— car'nea (fleshy). 1. Pink. August. 1816.
— Caroli'na (Carolina). 1. Pale purple. August. Carolina. 1728.
— corda'ta (heart-leaved). Pale purple. Carolina. 1827.
— crassifo'lia (thick-leaved). 3. Rose. April. 1825.
— di'stiecha (two-rowed). 5. Red. August. 1826.
— divarica'ta (spreading). 1. Light blue. March. 1746.
— Drummo'ndi (Drummond's). 1. Purple. July. Texas. 1835. Annual.
— ela'ta (tall). 6. Lilac. September. 1828.
— exce'sa (tall). 4. Purple. August. 1824.
— glabe'rri'ma (smoothest). 3. Red. July. 1725.
— interme'dia (intermediate). 2. Purple. July.
— involucre'ta (involved). 1. Lilac. June. 1830.
— læ'ta (charming). 3½. White. August.
— latifo'lia (broad-leaved). 3. Purple. July. Carolina. 1812.
— macula'ta (spotted-stalked). 4. Purple. July. 1740.
— ni'tida (shining). 2. Purple. July. 1800.
— niva'tis (snowy). ½. White. April. 1820.

P. odorat'a (scented). Lilac. August.

— ova'ta (egg-leaved). 1½. Purple. June. 1759.
— Listonia'na (Lady Liston's). 1. Purple. July. 1816.

— panicula'ta (panicle). 3. Pink. August. 1732.
— a'liba (white). 3. White. August. 1813.
— pendulifo'ra (drooping). 3½. Rose, purple. October. 1823.

— pilo'sa (hairy-leaved). 1. Purple. May. 1759.

— amœ'na (pleasing). ½. Pink. June. 1809.

— procu'mbens (lying-down). Flesh. May. 1827.

— pyramida'tis (pyramidal). 4. Flesh. July. 1800.

— a'liba (white-flowered). 4. White. June.

— corymbo'sa (corymb). 4. Purple. July.

— pendulifo'ra (drooping-flowered). 4. Purple. July.

— reptans (creeping). ½. Blue, purple. July. 1800.

— crassifo'lia (thick-leaved). 3. Purple. July. 1825.

— sca'bra (rough). Lilac. August.

— setu'cea (bristly). ½. Flesh. April. 1786.

— Sickma'nni (Sickman's). White. August. 1826.

— suave'olens (sweet-scented). 2. White. July. 1766.

— variegat'a (variegated). 1. White. July. 1766.

— subula'ta (awl-leaved). ½. Dark purple. May. 1786.

— suffrutico'sa (shrubby). 1½. Dark purple. August. 1790.

— tardifo'ra (late-flowered). 2. White. September. 1825.

— triflo'ra (three-flowered). 1. Pale lilac. August. Carolina. 1816.

— undula'ta (waved-leaved). 3. Purple. July. 1759.

— Virgini'ca (Virginian). 1. Purple. July. Virginia. 1812.

PHœ'NIX. Date Palm. (The Greek name of the tree. Nat. ord., *Palms* [Palmaceæ]. Linn., 22-*Diæcia* 3-*Triandria*.)

Dactylifera requires a greenhouse, but all the others a stove. Seeds in a hotbed, in spring, or when procurable; rich, rather stiff loam, or good, fibry loam, with a fourth part of old cow-dung.

P. acut'lis (stemless). 6. White, green. E. Ind. 1816.

— dactylifera (common). Date-bearing). 40. White, green. Levant. 1597.

— farini'fera (mealy). 28. White, green. E. Ind. 1800.

— Leone'nsis (Sierra Leone). 30. Sierra Leone. 1823.

— paludo'sa (marsh). 20. E. Ind. 1820.

— pygme'a (pigmy). 6. Mauritius. 1823.

— rectina'ta (leaning). 10. White, green. Cape of Good Hope. 1792.

— sylve'stris (wood). 14. Green. May. E. Ind. 1763.

PHOLIDOT'A. Rattle-snake Orchid. (From *pholis*, a scale, and *ous* (*otis*), an ear; flowers arranged like an ear of wheat, with scaly bractes, as the tail of that snake. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-*Gynandria* 1-*Monandria*. Allied to *Cœlogyne*.)

Stove orchids. Division of the plant; in a pot. See ORCHIDS.

P. articulata (jointed). White, yellow. April.

— Khoo'sea. 1837.

— Chine'sis (Chinese). ½. Whitish. May. China. 1844.

— conchoi'dea (shell-like). Yellow. February. Manila. 1840.

— undula'ta (waved-leaved). Pale red. April. E. Ind. 1828.

PHORMIUM. Flax Lily, or New Zealand Flax. (From *phormos*, a basket; one of the uses made of the fibre. Nat. ord., *Lilyworts* [Liliaceæ]. Linn., 6-*Hexandria* 1-*Monogynia*.)

Hardy herbaceous perennial. Divisions of the root; rich, mellow loam.

P. tetan (tough). 6. Green, white. August. New Zealand. 1798.

PHOTYNIA. (From *photeinos*, shining; appearance of the leaves. Nat. ord., *Appleworts* [Pomaceæ]. Linn., 12-*Icosandria* 2-*Di-pentagynia*. Allied to *Eriobotrya*.)

Half-hardy white-flowered evergreens. Seeds when procurable, treated as the haws of the Hawthorn; generally by budding on the Hawthorn as a stock; rather tender for the open air north of London, but deserve a wall, owing to their beautiful foliage; and where, also, when established, they would generally flower freely.

P. arbutifolia (arbutus-leaved). 10. July. California. 1796.

— *du'bia* (doubtful). 10. Nepaul. 1821.

— *integrifolia* (entire-leaved). 10. Nepaul. 1820.

— *serrula'ta* (saw-edge-leaved). 10. May. China. 1804.

PHRYNIUM. (From *phrynos*, a frog; because inhabiting marshes. Nat. ord., *Marants* [Marantaceæ]. Linn., 1-*Monandria* 1-*Monogynia*. Allied to *Canna*.)

Stove herbaceous perennials; yellow-flowered, where not otherwise specified. Seeds in a hotbed in spring, or division of the roots as fresh growth commences; rich loam and a little peat. Winter temp., 50° to 55°; summer, 60° to 85°.

P. capitatum (headed). 5. White, purple. July. E. Ind. 1807.

— *colorata* (coloured). 2. Orange. May. Brazil. 1828.

— *comosum* (tufted). 3. July. Surinam. 1828.

— *grandiflorum* (large-flowered). 1. July. Brazil. 1823.

— *myrosma* (myrrh-scented). 2. White. July. S. Amer. 1820.

— *obliquum* (twisted). 1½. June. E. Ind. 1824.

— *Parkeri* (Parker's). 2. July. Grenada. 1823.

— *parviflorum* (small-flowered). 4. July. E. Ind. 1820.

— *sanguineum* (blood-coloured). 6. Red. February. — *setosum* (bristly). 2. Purple. June. Rio Janeiro. 1824.

— *spicatum* (spiked). 1. July. E. Ind. 1825.

— *villosum* (shaggy). March. Demerara. 1842.

PHYELLA. (A diminutive of *phycos*, Red Alkanet; alluding to the colour of the flowers. Nat. ord., *Amaryllids* [Amaryllidaceæ]. Linn., 6-*Hexandria* 1-*Monogynia*. Allied to *Habranthus*.)

Half-hardy beautiful bulbs, whose old roots like those of the Tulip and Hyacinths, die yearly; and, therefore, may, like them, be taken up to dry as soon as the leaves die. They flower in summer after the leaves are fully grown; die, or should die, in August, and remain dormant until February; peat earth is poison to them; strong loam suits them best, and a very dry bottom.

There is a magnificent *Phycella* in Valparaiso not yet introduced; red flowers, and golden tubes or bottoms. Seeds, and offset bulbs; warm border, protected from wet and cold during winter, or sheltered from frost in cold pit or frame.

P. biflora (two-flowered). Scarlet. April. Chili.

— *brevituba* (short-tubed). 1. Scarlet. July. 1836.

— *chlorocera* (yellow-green). Green, crimson.

Mexico. 1844.

— *corusca* (glittering). 1. Scarlet. September.

Cochimbo. 1825.

— *cyrtanthoides* (cyrtanthus-like). 3. Crimson.

June. Chili. 1824.

— *glauca* (milky-green). 1. Red. June. Val-

paraiso. 1824.

— *Herbertiana* (Herbert's). 1. Red, yellow

June. Andes. 1825.

— *igne* (fiery). 1. Scarlet. April. Chili. 1824.

— *pulchra* (pretty). 1½. Red. October.

Valparaiso.

— *obtus* (blunt). Peru. 1844.

PHYLLICA. (From *phyllikos*, leafy; abundance of evergreen leaves. Nat. ord., *Rhamnads* [Rhamnaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*.)

Greenhouse evergreens, from the Cape of Good Hope, and all white-flowered, unless otherwise mentioned. Cuttings of young shoots in sand, under a glass, in spring, and kept cool and shaded from sunshine until they have struck; sandy, fibry peat, with nodules of freestone and charcoal. Winter temp., 40° to 45°.

P. bicolor (two-coloured). 2. June. 1817.

— *capitata* (headed). 1. June. 1800.

— *cylindrica* (cylindrical). 2. Yellow, green. June.

— *ericoides* (heath-like). 3. June. 1731.

— *globosa* (globose). 3. June. 1800.

— *imbricata* (imbricated). 1. October. 1801.

— *nitida* (shining). November. 1774.

— *eriophoa* (woolly). 3. November. 1774.

— *papillo'sa* (nippled). 3. Pale yellow. June. 1820.

— *pin* (pine-like). November. 1774.

— *pinifolia* (pine-leaved). 2. July. 1789.

— *plumosa* (feathered). 2. April. 1759.

— *rosmarinifolia* (rosemary-leaved). 3. 1815.

— *squarrosa* (spreading). 2. September. 1800.

PHYLLANTHUS. (From *phyllon*, a leaf, and *anthos*, a flower; flowers produced on the edges of the leaves. Nat. ord., *Spurgeworts* [Euphorbiaceæ]. Linn., 21-*Monæcia* 10-*Monadelphia*.)

Annuals and biennials, by seed in a hotbed, in spring, and then flowered in stove and greenhouse during the summer. Shrubby species, by cuttings of the hard shoots in sandy soil, in heat; sandy loam and fibry peat, with a little broken bricks, charcoal, and dried cow-dung. Winter temp., 50° to 55°; summer, 60° to 85°.

ANNUALS AND BIENNIALS.

P. gracilis (slender). 1. Green, yellow. Aug-

ust. E. Ind. 1818. Biennial.

— *Niruri* (Niruri). ½. Green. July. E. Ind. 1692.

— *obovatus* (reversed-egg-leaved). 3. July. N.

Amer. 1803. Hardy.

— *urina'ria* (urinary). ½. Green, yellow. August.

E. Ind. 1819.

STOVE EVERGREEN SHRUBS.

P. frazini'folius (ash-leaved). 4. Green. August.

E. Ind. 1819.

— *grandifolius* (large-leaved). 5. America. 1771.

- P. juglandifolius* (walnut-leaved). 2. Green, yellow. August. 1818.
 — *lanceolatus* (spear-head-leaved). 3. Green, yellow. Isle of Bourbon. 1822.
 — *lu'cens* (shining). 2. Green, yellow. August. China. 1820. Greenhouse.
 — *mimosoides* (mimosa-like). 10. Green. August. Caribbees. 1817.
 — *nutans* (nodding). 1½. Green, yellow. August. Jamaica. 1820.
 — *polyphyllus* (many-leaved). 3. Green. August. E. Ind. 1805.
 — *reticulatus* (netted). 3. Red. August. E. Ind.
 — *scandens* (climbing). 10. Green, yellow. August. E. Ind. 1822. Climber.
 — *turbidatus* (top-shaped). 2. Green. July. China.

PHYLLANTHON. (From *phyllon*, a leaf, and *anthos*, a joint; leaflets as if jointed to the footstalks. Nat. ord., *Crescentiads* [*Crescentiaceæ*]. Linn., 14. *Didymaria* 1-*Gymnospermia*. Alliance, a small order next to *Bignoniads*.)

Stove evergreen shrub. Cuttings of stubby side-shoots, or pieces of the ripe young wood, in sand, under a bell-glass, in bottom-heat; sandy loam and fibry peat, and a little leaf-mould and charcoal. Winter temp., 50° to 55°; summer, 60° to 90°.

P. Bojeria'na (Bojer's). 3. Rose. July. Mauritius. 1844.

PHYLLIOCLADUS. (From *phyllon*, a leaf, and *klados*, a branch; branch-like leafleted leaves. Nat. ord., *Taxads* [*Taxaceæ*]. Linn., 21-*Monæcia* 10-*Monadelphica*. Allied to *Podocarpus*.)

Greenhouse cone-bearing trees, from Van Diemen's Land. Cuttings of the ripe shoots in sand, under a glass, in spring, and no artificial bottom-heat until the cuttings swell at their base; strong loam. At Belfast, *rhomboidalis* (Celery-topped, or Adventure Bay Pine) bears the winter without protection; *trichomanoides* would be equally hardy in the south of Ireland and south-west of England. Winter temp., 40° to 48°; summer, 60° to 75°.

P. rhomboidalis (diamond-leaved). 40. 1825.
 — *trichomanoides* (maiden-hair-like). 60. Yellow. July. 1840.

PHYLLOTA. (From *phyllon*, a leaf, and *ous* (*otis*), an ear; shape of leaves. Nat. ord., *Leguminous Plants* [*Fabaceæ*]. Linn., 10-*Decandria* 1-*Monogynia*. Allied to *Aotus*.)

Greenhouse evergreen, yellow-flowered shrubs, introduced from New South Wales in 1824. Cuttings of young shoots getting firm (the little stubby side-shoots are best), in spring and summer, in sand, under a bell-glass; fibry, sandy peat, and a few nodules of fibry loam, to keep the plants stubby. Winter temp., 40° to 48°.

P. aspera (rough); *comosa* (tufted); *phylloides* (phyllica-like); *squarrosa* (spreading).

PHYSIO NUT. *Ja'tropha*.

PHYSIA'NTEUS. (From *physa*, a bladder, and *anthos*, a flower; alluding to its shape. Nat. ord., *Asclepiads* [*Asclepiadaceæ*]. Linn., 5-*Pentandria* 2-*Digynia*.)

Stove evergreen climber. Seed sown in a hot-bed in spring; cuttings of firm, stubby side-

shoots in summer, in sandy soil, under a glass, in heat; sandy loam and fibry peat, with plenty of drainage. Winter temp., 48° to 60°; summer, 60° to 85°. Does well in a stove; but we have had it flowering beautifully, and producing its singular fruit, in a conservatory of medium temperature. A variety named *albicans undulatus*, from South America, lived for several years against a wall in the Fulham nursery.

P. albens (whitish-leaved). 20. White. August. Buenos Ayres. 1830.

PHYSOCHLAI'NA. (From *physa*, a bladder, and *chlaina*, an outer garment; referring to the swollen calyx of some species. Nat. ord., *Nightshades* [*Solanaceæ*]. Linn., 5-*Pentandria* 1-*Monogynia*.) Hardy herbaceous. Common garden-soil. Increased by root division in autumn or early spring.

P. grandiflora (large-flowered). 1½. Green. May. Thibet. 1850.

PHYSOSTE'GIA. (From *physa*, a bladder, and *stega*, a covering; formation of the calyx. Nat. ord., *Lipworts* [*Lamiaceæ*]. Linn., 14-*Didymia* 1-*Gymnospermia*. Allied to *Melittis*.)

Hardy herbaceous perennials. Seeds in a little heat, early, and then most of the plants when turned out in May will bloom the same season; divisions of the plants in spring; and cuttings, or young shoots, under a hand-light, in sandy soil, in summer; sandy loam and a little leaf-mould.

P. cordata (heart-leaved). Purple. July. N. Amer. 1824.

— *denticulata* (toothed-leaved). Striped. August. Carolina. 1878.

— *imbricata* (imbricated-flowered). 3. Pale purple. September. Texas. 1833.

— *speciosa* (showy). Pink. July. Siberia. 1822.

— *truncata* (blunt-calycæd). 1½. Pale pink. St. Felipe. 1834.

— *variegata* (variegated). Purple. August. Carolina. 1812.

— *Virginiana* (Virginian). 1½. Red. August. N. Amer. 1683.

— *alba* (white). 3. White. August.

PHYSURUS. (From *physa*, a bladder, and *oura*, a tail. Nat. ord., *Orchids* [*Orchidaceæ*]. Linn., 20-*Gynandria* 1-*Monandria*. Allied to *Anæctochilus*.)

P. pictus rivals the far-famed *Anæctochilus* in the richness of its foliage. Stove orchids, in pots. Division in spring. See *ORCHIDS*.

P. argenteus (silvery-leaved). ½. White. June. Ceylon.

— *Lobbia'nus* (Lobb's). ½. Java. 1847.

— *pictus* (painted). ¾. White. June. Brazil. 1844.

— *Preslei* (Presley's). Yellow. February. Maraquita.

— *rufistylus* (few-flowered). Yellow. March. Caracas.

PHYTEU'NA. Rampion. (An ancient name of a plant. Nat. ord., *Bellworts* [*Campanulaceæ*]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Campanula*.)

Hardy herbaceous perennials, with two exceptions. Seeds and divisions in spring; common, light garden-soil. Pretty little things for rock-works and the front of borders.

- P. betonicifolium* (betony-leaved). 2. Pale blue. June. South Europe. 1818.
 — *campanuloides* (campanula-like). 1. Blue. July. Caucasus. 1804.
 — *Sibthorpiadnum* (Sibthorp's). July. Mount Olympus. 1804.
 — *cane'scens* (hoary). 2. Lilac. July. Hungary. 1804.
 — *Charmellii* (Charmeli's). 1. Blue. June. Pyrenees. 1823.
 — *comosum* (tufted). $\frac{1}{2}$. Blue. June. Austria. 1752. Biennial.
 — *globularifolium* (globularia-leaved). $\frac{1}{2}$. Blue. June. South of France. 1820.
 — *Halleri* (Haller's). $\frac{1}{2}$. Violet. May. South of France. 1822.
 — *hemisphaericum* (half-globed). 1. Blue. July. Switzerland. 1782.
 — *hispidium* (bristly). 1. Blue. June. Switzerland. 1825.
 — *humile* (humble). $\frac{1}{2}$. Blue. June. Switzerland. 1825.
 — *inequalatum* (levelled). 1. Blue. June. Austria. 1820.
 — *lanceolatum* (spear-head-leaved). $\frac{1}{2}$. White. June. Armenia. 1826.
 — *limoniifolium* (limonium-leaved). Switzerland. 1832. Evergreen.
 — *Michellii* (Michelli's). $\frac{1}{2}$. Red. June. Switzerland. 1822.
 — *nigrum* (black). $\frac{1}{2}$. Red. July. Bohemia. 1820.
 — *orbiculare* (round-headed). 1. Violet. July. England.
 — *decepiens* (deceiving). Blue. July. Switzerland. 1819.
 — *gigantum* (gigantic). Blue. July. France. 1817.
 — *pauciflorum* (few-flowered). $\frac{1}{2}$. Blue. May. Switzerland. 1823.
 — *pulchellum* (pretty). 1836.
 — *Scheuchzeri* (Scheuchzer's). $\frac{1}{2}$. Blue. May. Switzerland. 1813.
 — *scorzonerifolium* (scorzonera-leaved). 1. Blue. July. Alps. 1819.
 — *Sibiricum* (Siberian). 1. Blue. July. Siberia. 1817.
 — *Sieberi* (Sieber's). 1. Blue. June. Pyrenees. 1826.
 — *spicatum* (spiked). 2. Blue. May. Europe. 1597.

PHYTOLACCA. (From *phylon*, a plant, and *lacca*, lac; the crimson colour of the fruit. Nat. ord., *Phytolaccads* [*Phytolacaceæ*]. Linn., 10-*Decandria* 5-*Decagynia*.)

There are many tender species, but the following hardy herbaceous ones are all that are deserving notice. Seeds and divisions in spring; light, sandy soil and leaf-mould.

- P. acinosa* (kernel-like). North India. 1844.
 — *decandra* (ten-stamened. *Virginian Poke*). 5. White, green. August. S. Amer. 1768.

PICK-AXE should have a handle three feet and a half long, made of ash; and



the points or edges of the head should be of well-steeled iron. There are three

varieties:—1. The pick with two points, for loosening hard surfaces. 2. The pick-axe, for cutting through roots of trees when felling. 3. The mattock, with one pointed and one flat edge, for loosening surfaces and grubbing up roots.

PICOTEE. See **CARNATION** and **PINK**.

PIARANTHUS. (From *piar*, fatness, and *anthos*, a flower; the flowers being succulent, as in *Stapelia*. Nat. ord., *Asclepiads* [*Asclepiadaceæ*]. Linn., 5-*Pentandria* 2-*Digynia*.)

A true genus, but for practical gardening may be considered as a *Stapelia*. Greenhouse evergreens, from the Cape of Good Hope. Cuttings, dried some days at their base before inserting them in sandy loam; sandy loam, lime-rubbish, leaf-mould, and a little dried cow-dung. Winter temp., 45° to 55°; summer, 60° to 90°; dry in winter.

- P. a'ridus* (dry). $\frac{1}{2}$. Pale yellow. August. 1795.
 — *Gussoneanus* (Gussone's). $\frac{1}{2}$. Yellow, brown. June. 1832.
 — *incarnatus* (flesh-coloured). 1. Flesh. June. 1793.
 — *mammillaris* (nippled). Brown. June. 1774.
 — *parviflorus* (small-flowered). $\frac{1}{2}$. Yellow. August. 1795.
 — *purpureus* (dark). $\frac{1}{2}$. Dark purple. August. 1774.
 — *punctatus* (dotted). $\frac{1}{2}$. Dark purple. August. 1795.

PI'CEA. The Silver Fir, a true genus, but by recent authors considered only as a section of the Spruce tribe. See **PR'NUS**.

PICOTE'IA. (Named after A. Picket, a physician. Nat. ord., *Leguminous Plants* [*Fabaceæ*]. Linn., 17-*Diadelphica* 4-*Decandria*. Allied to *Hedysarum*.)

Stove evergreen, yellow-flowered shrubs, from the West Indies. Cuttings of half-ripened shoots in sand, under a glass, in bottom-heat; peat and loam. Winter temp., 50° to 55°; summer, 60° to 90°.

- P. aristata* (awned). 4. June. 1816.
 — *squamulata* (scaled). 4. 1824.

PIERA'DIA. (Named after Mr. Pierard, of Kew. Nat. ord., *Soapworts* [*Sapindaceæ*]. Linn., 8-*Octandria* 1-*Monogynia*. Allied to *Melicocca*.)

Stove evergreen tree. Cuttings of half-ripe shoots in sandy soil, in heat, in spring; loam and peat. Winter temp., 50° to 55°; summer, 60° to 80°.

- P. dulcis* (sweet). 20. Yellow. Sumatra. 1820.

PIERIS CRATEGI. Hawthorn, or Black-veined Butterfly. Is white, with black ribs or veins on the wings. It is very much like *Pontia brassicae*. The caterpillar is dirty yellow, hairy, black-headed, and a brown stripe down its sides. The caterpillars moult several times, and they are usually found on the apple-tree, where both the yellow eggs and caterpillars may

be found in June. The caterpillars draw two or three leaves together with a web. These should be sedulously sought for and destroyed.

PIGEON PEA. *Cajanus*.

PILEA'NTHUS. (From *pilos*, a cap, and *anthos*, a flower. Nat. ord., *Fringe-Myrtles* [*Chamelauciacæ*]. Linn., 12-*Icosandria* 1-*Monogynia*. Allied to *Calytrix*.)

Greenhouse evergreen shrub. Cuttings of short young shoots in sand, under a glass, in May, and placed in a shady place in a cold pit; sandy loam and a little peat. Winter temp., 36° to 48°.

P. lima'cis (limax-like). 2. April. White. N. Holland. 1824.

PILEWORT. *Ficaria*.

PILU'MNA. (From *pilos* or *pileos*, a cap; shape of flowers. Nat. ord., *Orchids* [*Orchidacæ*]. Linn., 20-*Gynandria* 1-*Monandria*. Allied to *Trichopilia*.)

Stove orchids. Division of plant, or taking off of a shoot; in pots. See *ORCHIDS*.

P. fra'grans (sweet-scented). White, yellow. May. Popayan. 1843.

— *la'xa* (loose-flowered). 3. Purple, white, green. October. Popayan. 1844.

PIMELE'A. From *pimele*, fat; referring to the viscid matter on the leaves of some species. Nat. ord., *Daphnads* [*Thymelacæ*]. Linn., 2-*Diandria* 1-*Monogynia*.)

Greenhouse evergreen shrubs, from New Holland. Seeds sown in a gentle hotbed, in spring; cuttings of young shoots in sand, under a bell-glass; sandy, fibry peat, with a third of fibry loam, and pieces of charcoal, freestone, and broken pots, to keep the soil open, in addition to good drainage. Winter temp., 40° to 48°.

P. affinis (related). White. May.
— *decussa'ta* (cross-branched). 2. Red. May. 1824.

— *diosma'folia* (diosma-leaved). 1. Rose. July. 1826.

— *gracilifo'ra* (slender-calyxed). 3. White. June. 1830.

— *Henderso'ni* (Henderson's). 2. Rose. July. 1837.

— *hispida* (bristly-flowered). 2. Blush. May. 1830.

— *interme'dia* (intermediate). 2. White. May. 1825.

— *linifo'lia* (flax-leaved). 2. White. May. 1793.

— *linol'des* (flax-like). 2. White. July. 1826.

— *longifo'ra* (long-flowered). 4. White. June. 1831.

— *na'na* (dwarf). 3. White. June. 1839.

— *ni'boa* (snowy-herbaged). 6. White. 1833.

— *paludo'sa* (marsh). White. April. 1826.

— *ro'sea* (rosy). 2. Red. June. 1800.

— *specta'bilis* (showy). 3. White, pink. May. 1840.

— *spica'ta* (spiked). 2. White. June. 1824.

— *syln'e'stris* (wood). 2. Blush. June. 1830.

PIME'NTA. Allspice-tree. (From *pimento*, the Spanish name. Nat. ord., *Myrtleblooms* [*Myrtacæ*]. Linn., 12-

Icosandria 1-*Monogynia*. Allied to *Myrtus*.)

Stove evergreen tree. Cuttings of ripe shoots in sand, under a bell-glass, and in a brisk bottom-heat, in spring; rich, sandy, fibry loam. Winter temp., 50° to 60°; summer, 60° to 85°.

P. vulga'ris (common. Allspice). 30. White. June. W. Ind. 1723.

PIMPERNEL. *Anagallis*.

PINASTER. *Pinus pina'ster*.

PINCHING is a term applied to crushing, between the finger and thumb, the leading bud of a shoot, so as to prevent its increasing in length, and to force more sap to the other buds.

PINKNE'YA. (Named after Mr. Pinkney, an American botanist. Nat. ord., *Cinchonads* [*Cinchonacæ*]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Bouvardia*.)

Half-hardy evergreen tree. Seeds; and cuttings of ripened shoots under a hand-light, in sandy peat. It hardly deserves the greenhouse, and is rather tender for exposure, but would probably flourish against a south wall in a shallow border of loam and peat.

P. pu'bens (downy). 20. Red. June. Georgia. 1786.

PINE-APPLES. *Anana'ssa*.

Varieties.—*Queen*: a free grower and an excellent fruit; fit for the earliest summer fruit, and excellent during September and October. *Ripley Queen*: a very fine fruit, and by many preferred to the first. *St. Vincent*, or *Green Olive*: an excellent winter fruit. *Black Jamaica*: the best winter pine; it is too often confounded with the *Montserrat*. *Black Antigua*: a noble pyramidal fruit, with large pips; should be cut a little before it is quite ripe. *Brown Sugar-loaf*: large and showy, with a very juicy flesh; it is said by some to swell tolerably well in winter. *White Providence*: one of the largest and noblest of pines; flavour rather inferior. *Trinidad*: large and of pyramidal shape; flavour not first-rate. *Enville*: noble-looking fruit; flavour second-rate.

Culture.—This usually commences in February. Have the upper thirty inches of the pit in which the pots are to be plunged filled with fresh tan. *Re-pot* your plants, using any turfy soil, even from a road-side, well chopped to pieces *when dry*, but by no means riddled. Nevertheless, it is very good practice to have a richer and mellowier compost in a more decomposed state on the potting bench, such as the surface of an old cucumber-bed, chopped when dry, dung,

rotten leaves, and loam altogether (but most of the loam), and then passed through a very coarse riddle, afterwards adding one-sixth of charred sticks, or rubbish, such as will pass readily through a riddle of an inch mesh.

Use pots which would require but one more shift: the size of the pot for the final shift will determine this; and pots of about thirteen inches diameter will be sufficiently large for any beginner to fruit in. In potting, first place three or four large crocks in such a way as that at least three bold apertures be formed, both for the escape of water and the admission of gaseous matter from below. Over this strew broken crocks and charcoal lumps, large as horse-beans, until the large crocks at the bottom are just concealed. Then strew a layer of the turfy lumps, out of which the loose soil has been ejected by shaking in a riddle. This done, the ball may at once be inserted, first suffering such crocks as are loose to dislodge themselves from the old ball. Next, throw in another layer of the turfy lumps all round the ball, and on these strew a couple of inches of the mixed compost in a mellow state; then, with a blunt stick, give the whole a slight pressure all round the ball, add another layer of the turfy lumps, strewing a little of the compost over them; again press with the stick; and now place a final coating of the compost, nearly two inches in depth, all over, and level with the rim of the pot. Let there be no tapping or thumping the bottom of the pot on the bench. If the balls of the pines about to be shifted are dry, water them, at least three days before they are to be shifted, with tepid manure-water, in order to allow the moisture to equalise itself, and the surplus to pass away. Thus there will be no occasion for any root-watering for nearly a month after shifting. The plants may be plunged immediately they are shifted; but let them by no means be more than half their depth in the tan. If any disrooting has become really necessary, and the sun shines bright, a little canvass shading will be a benefit for a couple of hours each day; not, however, to obstruct light, but rather to prevent the too rapid dispersion of atmospheric moisture.

Stove.—For the construction of this, see HOTHOUSE and PIT.

Table of Temperature as to Artificial Heat only.

	Day.	Night.	Rise in Sunshine.
January	64 deg.	60 deg.	6 deg.
February	66	60	6
March	70	62	6
April	74	64	8
May	76	65	10
June	78	66	10
July	80	68	10
August	80	68	10
September	76	63	10
October	73	62	8
November	70	62	8
December	64	60	6

Tables of this kind must not be allowed to guide the thermometer entirely. A good cultivator will take notice of the condition of his plants, and shape his course accordingly. If they appear "drawn," he should at once lower his night heat, as also that on dull days.

For *bottom-heat*, by adding 5° to every one of the above artificial day temperatures, we shall be as correct as by any tedious detail. Thus July and August should have a bottom-heat of 85°, which ought never to be exceeded in pine culture. If bottom-heat is supplied by a tank or pipes heated by hot water, the directions about renewing the tan are not needed.

Monthly Culture.—The plants being all plunged in the new pit, trial sticks must be put in, and a bottom-heat thermometer by all means employed. The bottom-heat here given is meant to apply to the heat at the bottom of the pot. Whilst practitioners are driven to capricious fermenting materials as a source of bottom-heat, an excess of heat will sometimes become necessary *inside the bed*, in order to provide somewhat against sudden declines. Let, then, the operator secure the bottom-heat as per table at the bottom of the pot, and all will be right.

If the heat rises above the desired point, let water be instantly employed as a cooler between the pots; and if this does not immediately check it sufficiently, let the pots forthwith be rocked to and fro in the bed, until a fair cavity is obtained between the tan and the pot side; and when the heat has declined to the desired pitch the cavity may be filled up again.

Let atmospheric moisture be liberally employed, especially from three o'clock in the afternoon until eight or nine the next morning. A slight syringing may be applied on every afternoon about

closing time, taking care that at this time (*February*) it is dispersed on the following morning by a liberal heat and a free ventilation. Air must be given daily, if only for an hour; during all moderate weather a little may be given at 8 A.M.; increased, if necessary, about 11 A.M.; and taken entirely away about 3 P.M.

March.—The sun will now be gaining much power, and the amount of perspiration from the foliage will be much increased; let, therefore, a corresponding increase take place in the amount of atmospheric moisture. Shading may be employed for a couple of hours or so in the middle of very sunny days with some benefit. Syringing the surface of the tan is an excellent plan. If the wind is very cutting, be very cautious in the admission of air; the front sashes may be kept closed, and, if sunny, the shade applied, merely letting a little of the surplus heat escape at back.

April.—In proportion to rapidity of growth must be the admission of air. With a little freedom in growth, accompanied by a free perspiration, the plants will begin to require occasional waterings; indeed, the Queen section will have required it before March was out. With regard to such as the Black Jamaica, the case is widely different; it is astonishing how long these pines will not only subsist but thrive without water. Queens, En-ville, Providences, &c., will require it thrice to their once, especially the Queens.

May.—Atmospheric moisture must continue to increase with increasing heat and light. The syringe may now be plied two or three times a week, always choosing bright afternoons for its application. The closing up, or reducing the air, must now be deferred until four o'clock P.M., and the giving of air must take place proportionately sooner; indeed, such ought to be in April. If the pines are vigorous, and plenty of atmospheric moisture can be commanded, discontinue shading at the end of April or beginning of May, unless the roof be of an exceedingly bright character, and the squares of glass very large. Rather let atmospheric moisture more abound, accompanied by a freer ventilation still.

June.—If the pines have done well, their pots will be filled with fine roots by the end of June, and shifting into the fruiting-pots will become necessary. We will, however, pass on to the next month.

July.—At whatever period the last shifting occurs, the same routine of potting may be observed. We have nothing new to say, except that as the size of the pot increases, so may in proportion the size of the lumps of turf, &c. The plunging medium, if necessary, may be renewed; but much caution must be exercised at this period, when the solar heat produces so much excitement. However, we advise that a foot or so of new tan be trenched into the bottom of the bed, and a little mixed with surface tan, and this merely to promote durability through the ensuing winter. Watch daily their bottom-heat thermometer. As before observed, if the plants require a watering, let it be three days before the operation of shifting.

August.—After the plants have been shifted a fortnight or so, they will again require the water-pot. Until the plants are beginning to root in the new soil, however, they may be kept moist enough by copious syringings, damping also the surface of the tan daily. All that is further necessary is a most liberal ventilation from eight A.M. until past four P.M., applying all the atmospheric moisture possible the moment the house is closed, and syringing just previous to closing.

September.—The August advice will do perfectly well for this month, except that ventilation may even be more liberal still, when the weather is fine, to put a check on too rampant growth; for, in order to have fine "shows," the tissue of the plant must become highly solidified.

October.—The light will now begin to decrease considerably, and both artificial heat and atmospheric moisture must give way in a proportionate degree. Still, however, persist in permitting a considerable increase of heat when the weather is bright. We need hardly say, beware of burning at the root. The advice applies to every month alike; but it requires a double amount of watchfulness for three weeks after disturbing the fermenting material.

November.—In proportion to the dullness of this month, the heat and moisture must decline. The tan-bed will require some renewal in the early part of this month, in order to go well through the winter; and if the tan is mellow, or somewhat dry, let it be well watered with tepid water, and then stirred deeply with a pointed stake, as deep as the stake can

go. The whole may then be cased over up to, and rather above, the rim of the pot, provided the bottom-heat has declined sufficiently to bear it. This renewal must be watched, and water applied to the tan if necessary.

December and January require a very similar course of practice; much fire-heat will at times be necessary, and all possible means must be taken to counteract dryness in the atmosphere. Syringing can seldom be permitted in these two months, but sprinklings on the surface of the tan, and once a week it may be stirred up with a stake. Besides this, the floor may be kept moist, evaporating pans kept in continual requisition, and even the walks sprinkled, if necessary. If the weather become unusually severe, rather give up five degrees on the thermometer than continue a roasting fire for several days. In emergencies of this kind, the pines will take no harm at 55°; but not a degree below this should be permitted.

February.—The temperature will now begin to rise again slightly; growth recommences, and repotting succession pines, and the renewal of bottom-heat is needed, this brings us to the point from which we commenced.

Insects.—See ACARUS and COCCUS.

PINE-TREE. *Pinus*.

PINEASTER BEETLE. *Bostrichus*.

PINGUI-CULA. Butterwort. (From *pinguis*, fat; the greasiness of the leaves. Nat. ord., *Butterworts* [Lentibulacæ]. Linn., 2-*Diandria* 1-*Monogynia*.)

Seeds and divisions; chiefly requiring marshy, boggy soil. North American species are the most tender, requiring the treatment generally given to alpine, with the addition of keeping water in the saucer below the pot in which they are grown.

P. edentula (toothless). $\frac{1}{2}$. Yellow. April. N. Amer. 1823.

— *grandiflora* (large-flowered). $\frac{1}{2}$. Blue. April. Britain.

— *lutea* (yellow). $\frac{1}{2}$. Yellow. June. Carolina. 1816.

— *orchidoïdes* (orchis-like). $\frac{1}{2}$. Purple. October. Mexico. 1845.

— *vulgaris* (common). $\frac{1}{2}$. Violet. May. Britain.


PINK. So little do the Pink, Picotee, and Carnation differ in their botanical characteristics, that they are all considered varieties of the Clove Pink (*Dianthus caryophyllus*). Some think that the Red Pinks only are derived from this, but that the Pheasant's-eye Pinks are the offspring of the Feathered Pink (*Dianthus plumarius*). As florists' flowers they are very distinct. The

Carnation marks in flakes, or ribbons, of colour, from centre to edge, and through the edge; and the more dense these ribbons, or stripes, or flakes of colour are, and the more distinct the white ground between them, the better, and the more equally divided, as to quantity, they are, the better. As the petals are broader as they approach the outer edge, so also are, or should be, both the colour and the white. They are divided into classes, called *Bizarres* and *Flakes*; the former having two colours of stripe besides the white, the latter only one colour. These *Bizarres* and *Flakes* are subdivided, there being purple flakes, rose flakes, and scarlet flakes; and among the *bizarres*, scarlet *bizarres*, which have scarlet stripes, and a second colour, which is considered better for a rich contrast of black, and approaches to it; then purple *bizarres*, which have purple stripes, with a light pink, or rose, or some other colour, forming a contrast. The *Picotee* has the colour only on the edge, and broad or narrow, as the case may be, but ramifying towards the centre; any mark or spirt of colour that does not touch the edge is a blemish. Some, therefore, are only marked round the edge very distinctly, but as narrow as possible; others have a sort of feathering, narrow or deep, as the case may be, but feathering inwards from the edge; the outer edge solid, and the inner edge rough, or feathery. The *Pink* is distinct from both these. The lacing, as it were, of a pink is rough outside and inside, with a portion of white outside the lacing, as if a band of colour had been laid on; besides this, there is colour at the base of every petal, and, perhaps, one-third of the distance along the petal, so that it forms an eye, or centre, of colour, which is peculiar to itself, and which never occurs in the *Carnation* or *Picotee*. A *Pink*, without its lacing all round each petal, and its narrow strip of white outside it, would be worthless as a show-flower. The more distinct this lacing is, the better; it should look like an even piece of embroidery, just fairly within the outer edge of the white.

The *Pink* may be propagated and cultivated in every respect similarly to the *Carnation*. *Pipings* of it are best made at the end of May, or early in June.

Growing in Beds.—By the middle of August Pinks are all gone out of flower.

The old plants are of little use to the florist, as they seldom produce the second year first-rate bloom; but for ornamenting the border they are valuable. Remove them out of the bed; trim of all dead flower-stems; and plant them in the borders of the garden rather deeper than they have been before. They will make fresh roots higher up the stems, and form close compact bushes, producing the next season abundance of flowers. If it is intended to grow Pinks again in the same bed, the soil ought to be taken out a foot deep, and renewed with fresh loam and very rotten stable-dung, in the proportion of three of the first to one of the latter, turning it over frequently to thoroughly mix and sweeten it. This should be done by the third week of August. Raise the bed six inches above the soil around, and formed like a pitched roof,



thus. The compost should be at least a foot deep. Plant in rows, the first week in September, and twelve inches apart each way. Sheltering in winter, frequent stirring of the soil in spring, and mulching with short, well-decayed stable manure early in June, are the chief points of after-culture. See CARNATION for other points requiring attention.

PIN PILLAR. *Opuntia Curassavica*.

PINNATE. A leaf is pinnate when several leaflets grow from the sides of one foot-stalk, as in the Pea, Acacia, &c.

PINNATIFID is when a leaf is cut across from the edge towards the centre nerve into several oblong parallel segments, as in Ipomopsis, &c.

PRINUS. Pine-tree. (A name from Theophrastus. Nat. ord., *Conifers* [Pinacee]. Linn., 21-Monæcia 10-Monadelphica.)

Hardy evergreens, except where otherwise mentioned. Chiefly by seeds; scarce ones by cuttings, layers, inarching, and grafting; deep, rich loam yields the quickest and finest timber for bulk; a more mountainous situation, where the soil is neither so rich nor so deep, is supposed to yield the most lasting timber.

FIRS. (*A'bies*.)

All hardy evergreens.

- P. Ajone'sis* (Ajona). Large tree. Siberia.
- *a'lba* (white. *Spruce*). 50. May. N. Amer. 1700.
- *na'na* (dwarf). May.
- *amab'ilis* (lovely). 180. April. New California. 1831.
- *aroma'tica* (aromatic). 100. Oregon.
- *balsa'mea* (balm of Gilead). 45. May. N. Amer. 1696.

- P. bracte'ata* (bracted). 120. California.
- *Brunoni'na* (Brown's). 75. Nepaul.
- *Canada'nsis* (Canadian. *Hemlock-spruce*). 85. May. N. Amer. 1736.
- *Cephalo'nica* (Cephalonian). 60. May. Cephalonia. 1824.
- *co'ncolor* (one-coloured). Mountains of Mexico.
- *Dougla'sii* (Douglas's). 170. May. N. Amer. 1826.
- *exce'ssa* (lofty). 150. May. North of Europe.
- *Curpa'tica*, *Clanbrasilia'na*, *gigant'e'a*, *monstro'sa*, *mucrona'ta*, *na'na*, *tenui-folia*, *variega'ta*, and *vimina'tis* are all varieties of *exce'ssa*.
- *falca'ta* (sickle-leaved). 35. Oregon.
- *fir'ma* (solid). Mountains of Japan.
- *Fra'seri* (Fraser's). 30. May. Pennsylvania. 1811.
- *na'na* (dwarf).
- *gra'n'dis* (great). 170. May. New California. 1831.
- *heterophy'lla* (various-leaved). 180. Oregon.
- *homolepis* (equal-scaled). 25. Mountains of Japan.
- *Jezo'e'nsis* (Jezo. *Spruce-fir*). 55. Japan.
- *Khu'trow* (Khutrow). 50. Himalayas.
- *lasioca'rpa* (woolly-coned). North-west Amer.
- *Menzie'sii* (Menzies'). 60. May. North-west Amer. 1831.
- *Mertensia'na* (Merten's). Island of Sitcha.
- *microphy'lla* (small-leaved). 180. Oregon.
- *Mori'nda* (Morinda). 40. North India.
- *mucrona'ta* (sharp-pointed). 180. Oregon.
- *ni'gra* (black. *Spruce*). 60. May. N. Amer. 1700.
- *nobilis* (noble). 65. N. Amer. 1831.
- *Nordmannia'na* (Nordmann's). 80. Crimea.
- *obova'ta* (reversed-egg-coned). Siberia.
- *orienta'lis* (eastern). 30. May. Levant. 1825.
- *pi'cea* (pitchy). 160. May. Germany. 1603.
- *Apoll'nis* (Apollini). Greece.
- *leiocla'da* (smooth-branched). Levant.
- *pi'chta* (pitch). 50. May. Siberia. 1820.
- *Pi'ndrow* (Pindrow). 100. May. Himalayas. 1837.
- *Pinsa'po* (Pinsapo). 65. Spain. 1838.
- *poli'ta* (neat). 50. Mountains of Japan.
- *religio'sa* (sacred). 150. Mexico.
- *ru'bra* (red. *Spruce*). 50. May. N. Amer. 1755.
- *violace'a* (violet).
- *arctica* (arctic).
- *Schrenkia'na* (Schrenk's). Siberia.
- *Sitche'nsis* (Sitchan). Island of Sitcha.
- *trigo'na* (three-angled). 300. Oregon.
- *Tsu'ga* (Taugan). North of Japan.
- *na'na* (dwarf).
- *Webbia'na* (Webb's). 90. Himalayas. 1822.

LARCHES. (*La'rix*.)

All hardy and deciduous.

- P. Gmelin'i* (Gmelin's). Northern Siberia.
- *Griffithia'na* (Griffith's). 50. Nepaul.
- *Kamtscha'tika* (Kamtschatka).
- *la'rix* (larch). 100. Alps.
- *re'pens* (creeping).
- *pendula* (drooping).
- *Ledebow'rii* (Ledebour's).
- *lepto'lepis* (slender-scaled). North of Japan.
- *microca'rpa* (small-coned). 100. N. Amer.
- *pendula* (drooping). N. Amer.
- *Sibirica* (Siberian). Siberia.

PINES. (*Pi'nus*.)

HALF-HARDY EVERGREENS.

- P. Apulce'nsis* (Apulco). 50. Mexico. 1839.
- *Ayacahni'te* (Ayacahnite). 100. Mexico. 1840.
- *Canarie'nsis* (Canary). 40. Canaries. 1815.
- *cembrol'des* (cembra-like). 30. Mexico. 1845.
- *Devonia'na* (Duke of Devonshire's). 80. Mexico. 1839.

- P. filifolia* (thread-leaved). 60. Guatemala. 1839.
Gerardia'na (Gerard's). 50. Himalayas.
Gordonia'na (Gordon's). 80. Mexico. 1846.
Grenvillea (Lady Grenville's). 80. Mexico. 1846.
Hartwegii (Hartweg's). 40. Mexico. 1839.
leiophylla (smooth-leaved). 80. Mexico. 1800.
Lindleyana (Lindley's). Mexico.
longifolia (long-leaved). 60. Nepal. 1801.
macrophylla (large-leaved). Mexico. 1839.
Montezuma (Montezuma's). 40. Mexico.
occidentalis (western). 80. St. Domingo.
ocarpa (egg-shaped-coned). 40. Mexico. 1839.
ocarpoides (ocarpa-like). Guatemala. 1839.
Orizala (Mount Orizala). 30. Orizala. 1845.
patula (spreading-leaved). 65. Mexico. 1826.
stricta (straight).
macrocarpa (large-coned).
pseudostrobilus (false-coned). 70. Mexico. 1839.
Russelliana (Duke of Bedford's). Mexico. 1839.
Sinensis (Chinese). 40. China. 1825.
Teocote (Teocote. Twisted). 100. Mexico. 1826.
Winchesteriana (Marquis of Winchester's). 80. Mexico. 1846.

HARDY EVERGREENS.

- P. Arabica* (Arabian). Palestine.
australis (southern). 70. Florida. 1730.
Austriaca (Austrian. Black). June. Austria. 1835.
Banksiana (Banks's *Scrub*). 20. May. N. Amer. 1785.
Benthamiana (Bentham's). 200. California. 1847.
Bruetia (Calabrian). Calabria.
Bungeana (Bunge's). North of China.
cembra (cembra. *Siberian*). 25. May. Siberia. 1746.
pumila (dwarf). Siberia.
Chilmalmiana (Chilmalm's). 46. North of Mexico.
communis (common).
rubra (red). Scotland.
latifolia (broad-leaved).
edulis (eatable-seeded). North Mexico.
Ehrenbergii (Ehrenberg's). 100. Mexico.
excelsa (tall). 100. Nepal. 1823.
Finlaysoniana (Finlayson's). Cochinchina.
filix (pliant). New Mexico.
Fremontiana (Capt. Fremont's). 20. California. 1848.
Halepensis (Aleppo). 40. June. Levant. 1683.
maritima (maritime). 40. May. South of Greece.
inops (Jersey. Poor). 30. May. N. Amer. 1739.
insignis (remarkable). 60. California. 1833.
insularis (island). Philippines.
Koraensis (Corean). 10. Corea.
Lambertiana (Lambert's). 200. N. Amer. 1827.
brevifolia (short-leaved).
laricio (Corsican. Larch). 80. May. Corsica. 1814.
Llaveana (La Llave's). 25. Mexico. 1830.
macrocarpa (large-coned). 120. California.
Merkusii (Merkus's). 100. Sumatra.
mitis (soft-leaved). 50. May. N. Amer. 1739.
monticola (mountain-top). California. 1831.
Mugho (Mugho). May. Austria.
humilis (lowly).
obliqua (twisted).
muricata (prickly-coned). 40. California. 1848.
osteosperma (scaly-seeded). New Mexico.
Pallasiana (Pallas's). 70. May. Siberia. 1820.
parviflora (small-flowered). Japan. 1846.
Persica (Persian). South of Persia.

- P. Peuce* (Peucean). Mountains of Rumelia.
pinaster (cluster. Pinaster). 60. June. South Europe. 1596.
Escarena (Escaren's).
Lemoniana (Sir C. Lemon's). 30. May.
minor (less-coned). 60. May. France.
variegata (variegated-leaved). May.
pinæa (stone-pine). 60. June. South Europe. 1548.
Cretica (Cretan). May. Crete.
fragilis (thin-shelled). 60. May. South Europe.
ponderosa (weighty-wooded). 50. N. Amer. 1828.
pumilio (dwarf). 20. May. Europe.
pu'ngens (stinging). 40. May. N. Amer. 1804.
Pyrenaica (Pyrenean). 50. May. Pyrenees. 1834.
radiata (radiated-scaled). 100. California.
resinosa (resinous). 80. May. N. Amer. 1756.
rigida (stiff). 80. May. N. Amer. 1759.
rudis (rude). Mexico.
Sabina'na (Sabine's). 120. March. California. 1832.
serotina (late). 40. May. N. Amer. 1713.
strobiliformis (cone-shaped). 120. Mexico.
strobilus (large-coned. Weymouth). 200. April. N. Amer. 1705.
alba (white). 100. May.
brevifolia (short-leaved). 100. April.
sylvestris (wood. Scotch). 80. May. Scotland.
teda (frankincense). 80. May. Florida. 1713.
tenuifolia (slender-leaved). 80. Guatemala.
tuberculata (warted). 100. California.
variabilis (variable-two-and-three-leaved). 40. May. N. Amer. 1739.

PIP, in floriculture, is a single corolla or flower, where several grow upon a common stem, as in the *Polyanthus* and *Auricula*. The pips thus growing together are described as a *Truss*.

PIPER. Pepper. (From *pepto*, to digest; referring to the stimulating power. Nat. ord., *Pepperworts* [Piperacæ]. Linn., 2-*Diandria* 3-*Triandria*.)

Stove evergreens. Cuttings of half-ripened wood under a bell-glass, in sandy soil, in heat; also by suckers from the bottom of the plant. Winter temp., 50° to 60°; summer, 60° to 80°. The genus contains the Pepper-plant and the Betle, of which the leaf is chewed in India as much as tobacco is in the west.

- P. betle* (betle). 6. E. Ind. 1804.
discolor (two-coloured). 4. July. W. Ind. 1821.
geniculatum (swollen-jointed). 2. Jamaica. 1823.
glabrum (smooth). 10. Campeachy. 1768.
glaucescens (milky-green). 3. Peru. 1822.
laurifolium (laurel-leaved). 10. July. W. Ind. 1768.
longum (long). 6. June. E. Ind. 1788.
nigrum (black). 6. E. Ind. 1790.
tomentosum (downy). 14. August. W. Ind. 1768.
trioctum (trioctious). 6. E. Ind. 1818.
tuberculatum (pimpled). 6. S. Amer. 1816.
umbellatum (umbelled). 3. June. W. Ind. 1748.

PIPERIDGE. The Barberry.

PIPES for heating horticultural structures are preferably made of cast iron, painted black. Earthenware has been recommended for the purpose; but they are so much more liable to breakage and leakage, as to outweigh any original sav-

ing in the cost. For draining, earthen pipes with a bore an inch in diameter are the best.

TABLE of the quantity of pipe, four inches diameter, which will heat one thousand cubic feet of air per minute, any required number of degrees; the temperature of the pipe being 200 Fahrenheit.

Temp. of external air.	Temperature at which the room is required to be kept.									
Fahr. Scale.	45°	50°	55°	60°	65°	70°	75°	80°	85°	90°
10°	126	150	174	200	229	259	292	328	367	409
12	119	142	166	192	220	251	283	318	357	399
14	112	135	159	184	212	242	274	309	347	388
16	105	127	151	176	204	233	265	300	337	378
18	98	120	143	168	195	225	256	290	328	368
20	91	112	135	160	187	216	247	281	318	358
22	83	105	128	152	179	207	238	271	308	347
24	76	97	120	144	170	199	229	262	298	337
26	69	90	112	136	162	190	220	253	288	327
28	61	82	104	128	154	181	211	243	279	317
30	54	75	97	120	145	173	202	234	269	307
32	47	67	89	112	137	164	193	225	259	296
34	40	60	81	104	129	155	184	215	249	286
36	32	52	73	96	120	147	175	206	239	276
38	25	45	66	88	112	138	166	197	230	266
40	18	37	58	80	104	129	157	187	220	255
42	10	30	50	72	95	121	148	178	210	245
44	3	22	42	64	87	112	139	168	200	235
46		15	34	55	79	103	130	159	190	225
48		7	27	48	70	95	121	150	181	214
50			19	40	62	86	112	140	171	204
52				11	32	54	77	103	131	161

To ascertain by the above table the quantity of pipe which will heat one thousand cubic feet of air per minute, find, in the first column, the temperature corresponding to that of the external air, and in one of the other columns find the temperature of the room; then, in this latter column, and on the line which corresponds with the external temperature, the required number of feet of pipe will be found.

PIPEWORT. *Eriocaulon*.

PIPING, a mode of propagating the *Carnation*, *Picotee*, and *Pink*, is only another word for a cutting. Some persons pull off the pipings from the plant, and stick them in without more ado, but this is a slovenly way; besides, in pulling off the pipings, the main stem of the plant is materially injured, and often destroyed. The more correct way is, with a sharp knife, to cut off the side shoot close to the stem, without injuring it, leaving a sufficient number of shoots to preserve the health of the plant. Take off one kind at once, making the proper number or tally at the same time; then

dress the pipings by cutting off the lower leaves, leaving about four at the top. These four leaves should not be mutilated or shortened, as they are the organs to send down sap to form the roots. Put the pipings in pots filled with light earth, and a covering of sand upon it. Place them in a frame with a little bottom-heat, watering gently when dry, and shading from the sun until they are ripened. See *CARNATION*.

PIPTA'NTHUS. (From *pipto*, to fall, and *anthos*, a flower; short duration of the flowers. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 10-*Decandria* 1-*Monogynia*. Allied to *Anagyris*.)

Hardy deciduous shrub. Seeds, which ripen freely; cuttings of ripe shoots under a hand-light; layers; cuttings, also, of roots; rich, sandy loam; should have the protection of a wall in exposed, cold places, far north of London.

P. Nepalensis (Nepaulese). 10. Yellow. May. Nepaul. 1821.

PIQUE'RIA. (Named after *A. Piqueria*, a Spanish botanist. Nat. ord., *Compositæ* [Asteraceæ]. Linn., 19-*Syngenesia* 1-*Equalis*.)

Hardy herbaceous perennial. Seeds, but chiefly division in spring; common soil.

P. trinervia (three-nerved). 2. White. July. Mexico. 1798.

PISCI'DIA. Jamaica Dogwood. (From *piscis*, a fish, and *cædo*, to kill; the leaves, twigs, and bark are used to stupefy fish. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 16-*Monadelphia* 6-*Decandria*. Allied to *Andira*.)

Stove evergreen, white-flowered trees, from the West Indies. Cuttings of half-ripened shoots in sand, under a glass, in heat; sandy, fibry loam. Winter temp., 48° to 60°; summer, 60° to 83°.

P. Carthagineensis (Carthage). 30. 1690.

— *erythrina* (red). 25. 1690.

PISTA'CIA. Pistachia-tree. (Altered from its Arabic name, *Foustag*. Nat. ord., *Terebinthæ* [Anacardiaceæ]. Linn., 22-*Diacia* 5-*Pentandria*. Allied to *Schinus*.)

P. Atlantica and *lenticus* yield the useful resin called mastic. Seed nuts; layers and cuttings; rich, deep, sandy loam. Those from Barbary and the South of Europe require the protection of a greenhouse or a cold pit in winter; and even the hardiest kinds, though they have stood out at Fulham and the Horticultural Society's Gardens, will generally do best against a wall, when north of London, unless the place is both sheltered from the cold and exposed to the sun.

EVERGREEN TREES.

P. lentiscus (mastic-tree). 15. May. South Europe. 1654.

— *angustifolia* (narrow-leaved). 10. May. South Europe. 1667.

— *Chia* (Chian). May. Scio.

DECIDUOUS TREES.

- P. Atlantica* (Atlantic). 12. Barbary. 1790.
 — *multica* (beardless). Russia. 1844.
 — *terebinthus* (turpentine-tree). 20. June. South Europe. 1656.
 — — *sphaerocarpa* (round-fruited). May. Evergreen.
 — *vera* (true). 20. May. Syria. 1770.
 — — *Narbonensis* (Narbonne). 20. April. Narbonne. 1752.
 — — *trifolia* (three-leaved). 20. May. Syria.

PISTIA. (From *pistillum*, the female organ; signifying the appearance of the spathe inflorescence. Nat. ord., *Duck-weeds* [Pistaceæ]. Linn., 22-*Diocia* 1-*Monandria*.)

Beautiful stove aquatic. Seeds and divisions; rich, strong loam; a tub or tank in the plant-stove or aquarium.

- P. stratiotes* (water-soldier. Water Lettuce). $\frac{1}{2}$. Greenish. Jamaica. 1843.

PISTONIA. (Derivation not explained. Nat. ord., *Houseleeks* [Crassulaceæ]. Linn., 10-*Decandria* 5-*Decagynia*. Allied to *Cotyledon*.)

Hardy biennials. Seeds in any dry soil, in an exposed place, or a rock-work, in April.

- P. Hispanica* (Spanish). $\frac{1}{2}$. Red. June. Spain 1796.

PISUM. The *Pea*. (From *pis*, the Celtic name. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 17-*Diadelphia* 4-*Decandria*.)

Perennials, seeds and divisions; annuals, seeds sown according to the time the produce is wanted; rich, deep soil, where they will neither suffer from damp nor drought. See *PEA*.

HARDY HERBACEOUS.

- P. Americanum* (American). 1. Purple. S. Amer. 1800.

- *maritimum* (sea). 1 $\frac{1}{2}$. Purple. England.

HARDY ANNUALS.

- P. arvense* (field). 3. Red. South Europe.

- *elatum* (tall). 5. Dark blue. Iberia. 1820.

- *Jomardi* (Jomardi's). 3. White. Egypt. 1820.

- *sativum* (common-cultivated). 3. White. South Europe.

- — *humile* (humble). 1. White.

- — *macrocarpum* (large-podded). 4. White.

- — *quadratum* (squared). 3. White.

- — *saccharatum* (sugared). 4. White.

- — *umbellatum* (umbelled). 4. Purple.

- *Thebæicum* (Theban). 3. 1825.

PIT in the *Stove* is the excavation, or brick inclosure, in which is the tan, or other material for plunging the pots; and for *Forcing*, it is a structure having a glass roof, and differing from a hotbed and frame only in being large, and with sides fixed to the soil. (See *HOTBED* and *MELON* for examples of various kinds of Pit.) A Cold Pit is one where no artificial heat is used, the protection the plants receive being given solely by coverings. During summer and spring, these pits, when not covered, are still a great protection to

plants by their walls. Either a Melon or Cucumber Pit unheated, or an inclosure made with turf walls, and covered with the glass lights of a hotbed frame, answer admirably as cold pits.

PITCAIRNIA. (Named after Dr. Pitcairn. Nat. ord., *Bromelaeports* [Bromeliaceæ]. Linn., 8-*Octandria* 1-*Monogynia*. Allied to *Tillandsia*.)

Stove herbaceous perennials. Division, and by suckers in spring, or when they can best be obtained; sandy, fibry peat, and good, mellow loam. Winter temp., 50° to 55°; summer, 60° to 85°.

- P. albiflos* (white-flowered). 3. White. September. Brazil. 1824.

- *angustifolia* (narrow-leaved). 2. Scarlet. Santa Cruz. 1777.

- *bracteata* (large-red-bracted). 2. Scarlet. April. W. Ind. 1799.

- *bromeliæfolia* (pine-apple-leaved). 2. Scarlet. June. Jamaica. 1781.

- *Chilensis* (Chili). 1. Scarlet. July. Chili. 1820.

- *compressa* (pressed-together). 4. Yellow. July. Chili. 1852.

- *echinata* (echinated-flowered). Cream. Mexico. January. 1852.

- *excaepa* (stemless). Scarlet. July. New Grenada. 1850.

- *flammea* (flame-coloured). 2. Flame. November. Rio Janeiro. 1825.

- *furfuracea* (scurfy). 2. Red. July. S. Amer. 1816.

- *humilis* (low). 1. Scarlet. July. S. Amer. 1820.

- *integrifolia* (entire-leaved). 2. Red. August. W. Ind. 1800.

- *intermedia* (intermediate). 2. Scarlet. July. S. Amer. 1820.

- *iridifolia* (iris-flowered). 2. Scarlet. July. S. Amer. 1820.

- *latifolia* (broad-leaved). 2. Scarlet. August. W. Ind. 1785.

- *longifolia* (long-leaved). $\frac{1}{2}$. Scarlet. December. L. Ind. 1852.

- *macrocalyx* (large-calyxed). Yellow. S. Amer. 1852.

- *muscosa* (hoary). Red. December. St. Petersburg.

- *ringens* (gaping). Crimson. Demerara.

- *staminea* (long stamened). 2. Scarlet. January. S. Amer. 1823.

- *suaveolens* (sweet-scented). 2. Yellow. July. Brazil. 1824.

- *sulphurea* (sulphur-flowered). 2. Yellow. August. W. Ind. 1797.

- *undulata* (wavy). Scarlet. July. Brazil. 1843.

- *undulatifolia* (waved-leaved). 1 $\frac{1}{2}$. White. May. Brazil.

- — *gigantea* (gigantic). 5. White. February.

PITCHER-LEAF. *Nepe'nthes phyllanthifolia*.

PITCHER-PLANT. *Nepe'nthes distillatoria*.

PITTIOSPORUM. (From *pitte*, to tar or pitch, and *sporos*, seed; seeds covered with resinous pulp. Nat. ord., *Pittosporads* [Pittosporaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*.)

Greenhouse, evergreen shrubs. Cuttings of shoots in sand, under a bell-glass, in April, and kept in a close frame, without bottom-heat; sandy, fibry loam and a few nodules of fibry peat. Winter temp., 35° to 48°; summer, 60° to 76°. *Tobira*

and *undulatum* have delightfully-scented flowers, and both have stood against walls, in the climate of London, with a little protection.

- P. Andersoni* (Anderson's). 4. Yellow. May. N. Holland. 1820.
 — *angustifolium* (narrow-leaved). 1. Yellow. June. N. S. Wales. 1830.
 — *bicolor* (two-coloured). 3. Chocolate. Van Diemen's Land. 1842.
 — *bracteolatum* (small-bracted). Norfolk Island. 1837.
 — *Capeense* (Cape). May. 1820.
 — *coriaceum* (leathery-leaved). 8. Blue. May. Madeira. 1783.
 — *cornifolium* (cornus-leaved). 3. Brown. May. New Zealand. 1827.
 — *ferrugineum* (rusty-leaved). 6. Yellow. March. Guinea. 1787.
 — *flavum* (yellow-flowered). Yellow. February. Australia.
 — *fulvum* (tawny-leaved). 3. Yellow. April. N. Holland. 1820.
 — *glabratum* (smooth). 1½. Bright yellow. May. Hong-Kong. 1845.
 — *hirtum* (hairy-branched). 4. Yellow. May. Canaries. 1822.
 — *ligustrifolium* (privet-leaved). 6. September. N. Holland. 1823.
 — *Mauritiaenum* (Mauritius). 8. Yellow. May. Mauritius. 1825.
 — *Mayii* (May's). 3. 1845.
 — *oleifolium* (olive-leaved). N. Holland. 1823.
 — *revolutum* (curled-back-leaved). 6. Yellow. March. N. Holland. 1795.
 — *tenuifolium* (thin-leaved). 4. May. N. Holland. 1820.
 — *Tobira* (Tobira). 12. White. May. Japan. 1804.
 — *tomentosum* (woolly-leaved). 6. Yellow. July. N. Holland. 1824.
 — *undulatum* (waved-leaved). 10. White, green. April. N. S. Wales. 1789.
 — — *variegatum* (variegated-leaved). 5. White, yellow. April. Gardens.

PLAGIOLOBIUM. (From *plagios*, transverse, and *lobos*, a pod. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 17-*Dialophia*, 4-*Decandria*. Allied to *Hovea*.)

Greenhouse evergreen, purple-flowered shrubs, from New Holland. Cuttings of the points of young shoots, or the small side-shoots, when two inches in length, taken off close to the stem; sandy, fibry peat, with a few pieces of broken pots, charcoal, and dried leaf-mould. Winter temp., 40° to 48°; summer, 60° to 75°.

- P. chorozemefolium* (chorozema-leaved). 2. March. 1824.
 — *ilicifolium* (holly-leaved). 2. March. 1824.
 PLANERA. (Named after J. Planer, a German botanist. Nat. ord., *Elmwoods* [Ulmaceæ]. Linn., 4-*Tetrandria* 3-*Tragynia*. Allied to the Elm.)
 Hardy herbaceous trees. Layers, and grafting on the elm; common, rich loam.
P. carpinifolia (hornbeam-leaved). Green. April. Siberia.
 — *Gmelini* (Gmelin's). 12. Brown. April. N. Amer. 1816.
 — *parvifolia* (small-leaved). Green. April. Caucasus.
 — *Richardi* (Richard's). 12. Brown. April. N. Amer. 1760.

PLANE-TREE. *Platanus*.

PLANK PLANT. *Bossia scolopendrium*. PLANTAIN. *Musa*.

PLANTIA. (Named by Dr. Herbert after Mr. Plant, nurseryman at Cheadle, in commemoration of his success in cross-breeding. Nat. ord., *Irids* [Iridaceæ]. Linn., 3-*Triandria* 1-*Monogynia*. Allied to *Sisyrinchium*.)

Greenhouse bulb. Seeds in spring, in a slight hotbed; offsets; light, rich, sandy loam; bulbs requiring to be taken up, or protected in a frame during winter.

- P. flava* (yellow). Yellow. June. Cape of Good Hope. 1842.

PLANTING. The end of October is the best time in the whole year to plant all kinds of trees and bushes which cast their leaves in winter, whether fruit-bearing or ornamental; but all the evergreen American plants, as the *Rhododendron*, may be planted in October, as well as in July, August, or September—the right months for getting in most evergreens. For directions as to planting *Fruit-trees*, the reader is referred to the article STATIONS; but much of the following directions relative to planting ornamental trees and shrubs is generally applicable. Wherever they are to be placed, if the soil is at all dry at the bottom, no matter how poor it may be, it should be stirred or trenched three feet deep. In the case of single plants, where a pit or hole only is required, the narrowest diameter ought to be four feet, and if the bottom soil is poor, it should be removed, and some good added instead; but loose soil of this description will subside in time, and if the plants are tied to stakes, as many need be to keep them firm the first year or two, the sinking of the soil from under the roots may cause them to strain, or otherwise injure them, by cracking and letting in the dry winds to them. Another evil is, that when trees thus planted sink down gradually, additional soil is placed over the roots to make the surface level, and this is equivalent to planting too deep in the first instance, and deep planting is always to be avoided. Therefore the loose or new soil beneath the roots ought to be gently pressed down, and the pit filled up to near the surface of the ground, or to within three or four inches of it, so that, when the tree or bush is planted, the surface of the pit will appear a little mound, several inches above the surrounding surface. Plant fruit-trees shallow and on hard bottoms, to prevent their getting too luxu-

riant; but in gardening for ornamental plants, the more healthy and vigorous we can grow them the more ornamental they will be, unless, indeed, they are rather tender for our climate. In that case shallow planting on a solid or unloosed bottom suits them best, as they cannot grow too strong, and the wood will therefore ripen better. The shrub being taken up with long, bare roots, and a host of small fibres, and a considerable ball of soil attached close up to the bole or bottom of the plant, place this ball in the middle of the prepared pit, and fill in the loose soil under the strong roots, so that they may lie in their natural position; and in doing it, if the small fibres are pressed down too much, loosen them back again, and fill in any cavities under the bole or main roots. When the roots, great and small, each of them branching out in straight lines, are as regular as they can be placed, some of the lower ones will be out of sight, but the majority are still in view. Over those put a little better soil, thus: take a spadeful, and throw it past the stem of the plant on the roots on the opposite side to you, so that the soil runs along in the same direction as the roots. If you throw it on the roots next to you, it will run against their direction and turn back their small points, which would be nearly as bad as the old way of shaking the plant up and down at this stage. When all the roots are covered an inch or two, the watering-pot must come, with a large rose to it, and you must water all over the surface heartily, even if it is a rainy day. This watering is to do the business of the old shaking—settle the finer particles of the soil about the roots. The rest of the soil, to the depth of four or five inches, may be thrown on anyhow, if the lumps are broken small, so that the surface is pretty smooth, and formed into a shallow basin to hold the future waterings. A stout stake, or stakes, according to the size of the plant, should be driven down before the earth is put over the roots, to keep the plant from wind-waving. When large, bushy evergreens are to be removed, their branches must be tied up towards the stem by passing a rope or strong cord round them before commencing at the roots.

PLASHING is a mode of repairing or modifying a hedge by bending down a portion of the shoots, cutting them half

through near the ground to render them more pliable, and twisting them among the upright stems, so as to render the whole more effective as a fence, and, at the same time, preserve all the branches alive. For this purpose, the branches to be plashed, or bent down, must not be cut more than half through, in order that a sufficient portion of sap may rise up from the root to keep alive the upper part of the branches. Where hedges are properly formed and kept, they can very seldom require to be thus maimed.

PLASTER OF PARIS. See GYPSUM.

PLATANTHE'RA. (From *platys*, broad, and *anthera*, an anther. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-Gynandria 1-Monandria.)

Chiefly hardy orchids. Seeds, chiefly sown as soon as ripe, in loose, mossy, peaty soil; peat and loam, with a little chalk; hardy ones kept as alpine, in a frame, defended from heavy rains and from severe frosts, and the atmosphere round them moist, by watering the ground or moss on which they stand. Several require the protection of a warm greenhouse. *Habenaria bifolia* and *flava* have been added to this genus.

P. ciliaris (hair-fringed). Yellow. June. N.

Amer. 1796.

— *cristata* (crested). Yellow. September. N.

Amer. 1806.

— *dilatata* (spread). 1½. White. September. Canada. 1823.

— *fimbriata* (fringed). Purple. June. Canada. 1789.

— *herbifolia* (small-herb). Green. June. N.

Amer. 1789.

— *holopteala* (all-petaled). White. May. Canada. 1820.

— *Hookeri* (Hooker's). Green. June. N.

Amer. 1822.

— *hyperborea* (northern). Green. June. N.

Amer. 1805.

— *incisa* (cut). Pale yellow. June. N. Amer. 1826.

— *psychoides* (butterfly-like). Yellow. June.

N. Amer. 1826.

— *Susanna* (Susanna). Green, white. E. Ind.

1834. Stove.

PLATANUS. Plane-tree. (From *platys*, broad; the wide-spreading head of the trees. Nat. ord., *Planes* [Platanaceæ]. Linn., 21-Monæcia 9-Polyandria.)

Hardy deciduous trees, flowering in April. Seeds in the autumn, and preserved until spring; cuttings, also, in spring and autumn, but chiefly and most quickly by layers in autumn and spring; deep, mellow loam.

P. occidentalis (western). 70. N. Amer. 1636.

— *au'rea variegata* (golden-variegated-leaved). 70. 1846.

— *integrifolia* (entire-leaved). 70. 1845.

— *heterophylla* (various-leaved). America. 1842.

— *orientalis* (eastern). 50. Levant. 1548.

— *acerifolia* (maple-leaved). 70. Levant.

— *cuneata* (wedge-leaved). 20. Levant.

1739.

— *Hispanica* (Spanish). 70. Spain.

— *lacinia'ta* (cut-leaved). 70. 1845.

— *monstro'sa* (monstrous). 70. 1845.

PLATYCE'RIUM. (From *platys*, broad, and *keras*, a horn; form of the fertile fronds. Nat. ord., *Ferns* [Polypodiaceæ]. Linn., 24-*Cryptogamia* 1-*Filices*.)

Stove Ferns. See **FERNs**.

- P. alceifolius* (elk's-horn). 2. Brown. August. N. S. Wales. 1808.
 — *bifolius* (two-shaped). 4. Brown. April. E. Ind. 1842.
 — *grande* (grand). Brown. July. Moreton Bay. 1828.
 — *stemma'ria* (stemma'ria). 1. Brown. May. Guinea. 1822.

PLATYCH'LUM. This should be added to Gompholobium.

- P. Celsia'nium* (Cel's). 3. Yellow. N. Holland. 1820.

PLATYCO'DON. (From *platys*, broad, and *kodon*, a bell; form of flower. Nat. ord., *Bellworts* [Campanulaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*.)

Hardy herbaceous perennials. Seeds and divisions in spring, and cuttings of young shoots in summer, under a hand-light; sandy, mellow loam.

- P. grandiflorum* (large-flowered). 1. Blue. June. Dahuria. 1832.
 — *alba* (white). 1. White. June. North of China. 1845.
 — *alba semiplena* (semi-double-white). 1. White. June. China. 1845.

PLATYLO'BUM. Flat Pea. (From *platys*, broad, and *lobos*, a pod. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 16-*Monadelphia* 6-*Decandria*. Allied to *Hovea*.)

Greenhouse evergreens, from New Holland, and orange-flowered, except where otherwise mentioned. Seeds in spring, in a slight hotbed, after placing them several hours in water, at a temp. of 180°; also by cuttings of the half-ripened short shoots in sand, under a bell-glass, in April; fibry, sandy peat chiefly, with a very little fibry loam, charcoal, and broken potsherds, with pots extra well drained. Stagnant water, especially in winter, destroys them. Winter temp., 40° to 48°.

- P. formosum* (beautiful). 4. July. 1790.
 — *Murrayanum* (Murray's). 1. Yellow, red. May. 1832.
 — *obtusangulum* (obtusely-angled). 1. Yellow, red. May. 1832.
 — *ovatum* (egg-shaped). 4. July. 1792.
 — *parviflorum* (small-flowered). 4. July. 1792.
 — *triangulare* (triangular-shaped). 4. July. 1805.

PLATYLO'MA. (From *platys*, broad, and *loma*, an edge. Nat. ord., *Ferns* [Polypodiaceæ]. Linn., 24-*Cryptogamia* 1-*Filices*.)

Stove, brown-spored Fern. See **FERNs**.

- P. Andromeda'folia* (Andromeda-shaped). May. 1840.
 — *atro-purpurea* (dark purple). 4. May. N. Amer. 1770.
 — *Brownii* (Brown's). May. Australia.
 — *calomelanos* (beautiful-dark). May. Cape of Good Hope. 1843.
 — *cordata* (heart-shaped). 3. June. Mexico. 1842.

- P. falcata* (sickle-shaped). 1. May. N. Holland. 1823.

- *flexuosa* (zigzag). May. Peru. 1838.
 — *grandifolia* (large-leaved). 2. September. W. Ind. 1793.
 — *rotundifolia* (round-leaved). 1½. July. New Zealand. 1824.
 — *sagittata* (arrow-shaped). 3. June. S. Amer. 1826.

- *ternifolia* (three-leafleted). 1½. Mexico. 1840.
PLATYLO'PHUS. (From *platys*, broad, and *lophos*, a crest; seed-pod compressed so as to seem winged. Nat. ord., *Cunoniads* [Cunoniaceæ]. Linn., 10-*Decandria* 2-*Digynia*. Allied to *Weinmannia*.)

Greenhouse evergreen tree. Cuttings of ripe shoots in sand, under a glass, in April or May; loam and peat. Winter temp., 40° to 45°.

- P. trifoliata* (three-leafleted. *White Ash*). White. June. Cape of Good Hope. 1820.

PLATYLO'TALUM. (From *platys*, broad, and *petalum*, a petal. Nat. ord., *Crucifers* [Brassicaceæ]. Linn., 15-*Tetradynamia*.)

Hardy herbaceous perennial. Seeds, and divisions in spring; sandy peat, in a very sheltered border, but better still treated as an alpine herbaceous plant, by giving it rather a shady place in summer, and protecting it from wet and cold in winter.

- P. purpurea'scens* (purplish). 4. Purplish. May. Melville Island. 1827.

PLATYSTEMON. (From *platys*, broad, and *stemon*, a stamen. Nat. ord., *Poppyworts* [Papaveraceæ]. Linn., 13-*Polyandria* 1-*Monogynia*.)

Hardy, yellow-flowered annuals. Seeds in April; common, rich, light soil.

- P. Californicus* (Californian). 1. August. California. 1833.
 — *leiocephalus* (smooth-fruited). 1. July. Siberia. 1837.

PLATYSTIGMA. (From *platys*, broad, and *stigma*, the female organ. Nat. ord., *Poppyworts* [Papaveraceæ]. Linn., 13-*Polyandria* 1-*Monogynia*. Allied to *Platystemon*.)

Half-hardy herbaceous perennial. Seeds and divisions in spring; common, light soil; requires a little protection in winter.

- P. lineare* (narrow-leaved). 4. Yellow. California. 1838.

PLEASURE-GROUND is a collective name for that combination of parterres, lawns, shrubberies, waters, arbours, &c., which are noticed individually in these pages. One observation may be applied to all—let congruity preside over the whole. It is a great fault to have any one of those portions of the pleasure-ground in excess; and let the whole be proportioned to the residence. It is quite as objectionable to be over-gardened as to be over-housed.

PLECTRA'NIUS. (From *plektron*, a

cock's spur, and *anthos*, a flower. Nat. ord., *Labiates* [Lamiaceæ]. Linn., 14-*Didynamia* 1-*Gymnospermia*.)

Herbaceous, by seeds and divisions; shrubs, at times by seeds, but chiefly by cuttings in sand, under a bell-glass; rich, sandy soil will suit them all. Temperature that of the greenhouse and stove. There are many more species beside the following:—

P. inca'nus (hoary). 3. Blue. July. 1822. Greenhouse herbaceous.

— *terna'tus* (three-leaved). *Opime* plant). $\frac{3}{4}$. Purple. August. Madagascar. 1821. Stove herbaceous.

— *ternifo'lius* (three-leaved). 2. Blue. August. Nepal. 1820. Greenhouse herbaceous.

— *visco'tus* (clammy). 14. Blue. August. E. Ind. 1826. Stove evergreen.

PLEOTR'ITIS. (From *plektron*, a cock's spur; the flower being swollen in front. Nat. ord., *Valerianworts* [Valerianaceæ]. Linn., 3-*Triandria* 1-*Monogynia*.)

Hardy North American annuals. Seeds in April, in common garden-soil.

P. brachyste'mon (short-stemmed). White. June. 1836.

— *conge'sta* (crowded-flowered). 1. Rose. July. 1826.

— — *mi'nor* (smaller-flowered). 1. Rose. July. 1826.

PLECTO'NIA. (From *plektron*, a cock's spur; the tree armed with large spines. Nat. ord., *Cinchonads* [Cinchonaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Chiococca*.)

Greenhouse evergreen tree. Cuttings in sand, under a bell-glass, in May, and placed in a cold frame; sandy peat and fibry loam. Winter temp., 40° to 48°.

P. corymbo'sa (corymbd). 20. White, green. Cape of Good Hope. 1816.

PLEOPE'TTIS. (From *pleos*, full, and *pelte*, a shield; referring to the covering of the spore or seed-cases. Nat. ord., *Ferns* [Polypodiaceæ]. Linn., 24-*Cryptogamia* 1-*Filices*.)

Stove Ferns, chiefly with brown spores. See **FERNs**.

P. elonga'ta (elongated). Yellow. May. S. Amer. 1843.

— *ensifo'lia* (sword-leaved). $\frac{1}{2}$. May. S. Amer. 1823.

— *lancea'latum* (spear-headed). 1. August. W. Ind. 1812.

— *latifo'lia* (broad-leaved). $\frac{1}{2}$. May. S. Amer. 1823.

— *nu'da* (naked). $\frac{1}{2}$. May. Nepal.

— *percu'ssa* (stricken). Yellow. Brazil. 1842.

— *salicifo'lia* (willow-leaved). Yellow. August. Brazil.

— *serpens* (creeping). $\frac{1}{2}$. May. W. Ind. 1816.

PLERO'MA. (From *pleroma*, fulness; the cells of the seed-vessel. Nat. ord., *Melastomads* [Melastomaceæ]. Linn., 10-*Decandria* 1-*Monogynia*. Allied to *Oseeckia*.)

Stove Brazilian evergreen shrubs, chiefly with purple flowers. Cuttings of half-ripened, or

rather, the short, stubby side-shoots in sand, under a bell-glass, in summer, and plunged in a little bottom-heat, lifting the edge of the bell-glass at night, to prevent damping; sandy, fibry peat, with a few nodules of fibry loam, and pieces of broken pots and charcoal, to keep the soil open, and particularly well-drained. Winter temp., 45° to 55°; summer, 60° to 85°. *Elegans* and several others do best in an intermediate house, not so hot as a stove. It does better in the greenhouse than in the stove.

P. Benthamia'nium (Bentham's). 6. August. 1841. — *e'legans* (elegant). 5. June. Organ Mountains. 1844.

— *heteroma'tium* (one-woolly-sided). 4. July. 1819.

— *Kunthia'nium* (Kunth's). Palish red. July. 1847.

— *villo'sum* (shaggy). 3. White. July. 1820.

— *vim'ineum* (twiggly). 6. July. 1821.

PLEURA'NDRA. (From *pleuron*, a side, and *aner*, an anther; the stamens arranged on one side of the pistil, giving the centre of the flower a one-sided appearance. Nat. ord., *Dilleniads* [Dilleniaceæ]. Linn., 13 *Polyandria* 2-*Digynia*. Allied to *Candollea*.)

Greenhouse, yellow-flowered, New Holland, evergreen shrubs; all about two feet high, and blooming in May. Cuttings of half-ripened shoots in sand, under a bell-glass, in May; sandy, fibry loam and fibry peat, with pieces of charcoal mixed with the compost, with good drainage and careful watering. Winter temp., 40° to 48°.

P. acicula'ris (needle-leaved). 1822. *P. bracte'ata* (large-bracted). 1823. *P. calyci'na* (large-calyxed). 1826. *P. cneo'rum* (garland-flower). June. 1824. *P. ericafo'lia* (heath-leaved). 1824. *P. ni'tida* (shining). 1823. *P. sca'bra* (rough). 1824. *P. stri'cta* (erect). 1826.

PLEUROGRA'MMA. (From *pleuron*, a side, and *gramma*, writing; disposition of the spore or seed-cases. Nat. ord., *Ferns* [Polypodiaceæ]. Linn., 24-*Cryptogamia* 1-*Filices*.)

Stove Fern. See **FERNs**.

P. line'a'ris (narrow-leaved). Brown. June. Jamaica. 1823.

PLEURO'GYNE. (From *pleuron*, a side, and *gyne*, the female organ; this issuing from the side of the seed-vessel. Nat. ord., *Gentianworts* [Gentianaceæ]. Linn., 5-*Pentandria* 2-*Digynia*. Allied to *Gentian*.)

Hardy annual. Seeds in April; chalky loam, and a small portion of peat.

P. rota'ta (wheel-shaped-flowered). $\frac{3}{4}$. Blue. August. Siberia. 1827.

PLEUROTHA'LIS. (From *pleuron*, a side, and *thallo*, to bloom. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-*Gynandria* 1-*Monogynia*.)

Stove orchids, not possessing much beauty, but are interesting, curious little plants. They thrive best upon blocks of wood, with a small portion of moss tied to the block. The best form of the block is a round one, with the top

cut sloping at an angle of 45°, the plant to be fixed on the sloping part. These blocks can then be placed on the lower end, which should be cut horizontally, to allow them to stand firmly in that position.

P. aphthosa (wingless). Yellow. January. Mexico. 1839.

— *bicarinata* (two-keeled).

— *circumplexa* (bound-round). Green. February. Mexico. 1837.

— *elegans* (elegant). Violet. New Grenada.

— *flexuosa* (zigzag). Purple. September. Peru.

— *fragilis* (brittle). Orange, yellow. May. Rio Janeiro. 1841.

— *gelida* (cold). Yellowish. May. Jamaica. 1841.

— *grandiflora* (large-flowered). Peru. 1842.

— *Hartwegii* (Hartweg's). Pale yellow. Mexico.

— *lingua* (tongue-leaved). Purple. August. Mexico. 1842.

— *luteola* (yellowish-flowered). Yellow. August. Brazil. 1839.

— *marginata* (margined). Purple. April. Guatemala. 1836.

— *muscoidea* (moss-like). Pale yellow. June. Brazil. 1837.

— *oblongifolia* (oblong-leaved). Red. Jamaica.

— *obovata* (reversed-egg-leaved). Pale yellow. May. Brazil. 1834.

— *occulta* (hidden-flowered). Brown. January. Brazil. 1837.

— *ochrea* (reddish-yellow). Red, yellow. September. Brazil. 1839.

— *ophiocephala* (snake's-head). Yellow. April. Mexico. 1837.

— *pachygloussa* (thick-tongued). Purple. March. Mexico. 1837.

— *pandurifera* (fiddle-formed). Yellow. Brazil.

— *pectinata* (comb-like). Green, purple. July. Brazil. 1837.

— *plantaginæa* (plantain-like). Jamaica.

— *plumosa* (feathery-petaled). Green, purple. Trinidad. 1840.

— *pulchella* (neat). Purple. Peru.

— *punctata* (dotted). Yellow, purple. April. Brazil. 1842.

— *recurva* (curled-back-spiked). Purple. January. Brazil. 1841.

— *restrepoides* (restrepium-like). Purple, green. Peru.

— *roseo punctata* (rosy-dotted). White, rose. August. Sierra Nevada.

— *seriata* (rowed). Yellow, green. May. Brazil. 1842.

— *sertularioides* (sertularia-like). White. Jamaica.

— *sicaria* (dagger-shaped). Green, yellow. May. Trinidad. 1841.

— *Smithiana* (Smith's). Green, purple. May. Rio Janeiro. 1842.

— *stenopetala* (narrow-petaled). Brown, yellow. July. Brazil. 1837.

— *strupifolia* (strap-leaved). Purple, white. Year. Brazil. 1837.

— *teres* (round-stemmed). Cinnamon. August. Brazil. 1842.

— *tigrina* (tiger-spotted). Yellow, purple. August. Mexico. 1838.

— *tricarinata* (three-keeled). Orange. Peru.

— *villosa* (shaggy). Purple. May. Mexico. 1838.

— *vittata* (branded). Purple. April. Mexico. 1837.

PLOUGHMAN'S SPIKENARD. *Ba'ccharis*.

PLUM. *Prunus domestica* or *insititia*.

Superior kinds.—1. Smith's Orleans;

2. Greengage; 3. Précoce de Tours; 4.

Washington; 5. White Magnum Bonum; 6. Impératrice; 7. Denistou's Superb; 8. Golden Drop; 9. Early Favourite; 10. Ickworth Impératrice; 11. Cox's Late Red; 12. Jefferson's; 13. Reine Claude-Violette; 14. Royal Hâtive; 15. Wine Sour. Of these, Nos. 1, 3, and 9 are remarkable for their earliness as table fruit. Nos. 6, 7, 10, 11, 12, 13, for lateness as table fruit. Nos. 4, 7, 12, 15, are adapted for the kitchen.

Propagation: by Grafting.—The grafting of the Plum is performed in precisely the same manner as the Pear or the Apple, and at a similar period. The Brussels stock is principally used by our nurserymen; but for such gross sorts as the Washington, the Magnum Bonum, &c., it is a question whether the Muscle stock would not be fitter. We need not enlarge here on the process, which will be found in detail under the head GRAFTING.

Budding.—The same may be said of this process. See BUDDING.

Seed.—This is resorted to in order to procure new varieties; and to accomplish this, of course, seed from choice varieties is obtained. The mode of sowing, rearing, &c., will be found detailed in the articles PEACH and PEAR.

Culture during the Growing Period.—As with the Peach, the Nectarine, Pear, &c., so with the Plum. The first proceeding of the season is disbudding. About the beginning of May the trees burst forth into a great amount of spray, and much of this will be ill-placed; and, indeed, if well-placed, much too crowded. We are, of course, speaking of wall or espalier trees, for there the most attention is requisite. A progressive disbudding is best, the first consisting in merely removing the foreright and back shoots, unless, as observed with regard to the other stone fruits, vacant spaces occur, when an ill-placed shoot is better than none. Shortly after this period, if the trees be strong, gross shoots or robbers will show themselves, which, when about six inches long, should have the points pinched off. In a few weeks more, another disbudding will be expedient, and by this time shoots of a proper character for final reservation may be determined on. The latter may be carefully tied or trained as soon as convenient, and every shoot of a doubtful character, in the thinning out, may have the point pinched off. The rest of the proceedings, indeed,

are so similar to the *Peach*, that it is scarcely necessary to repeat them.

Culture during the Rest Period.—The trees will require some pruning, and this consists principally in thinning out, and reducing the snags or stumps of shoots pinched back in the summer previous. Our practice is to tie down on the old wood, or otherwise train in, as much of the shoot-jointed wood as possible, without cramming it too thick; for most of this wood will become studded with blossom-spurs in the succeeding summer. All that is not needed may be cut clear away, as in the Pear; and all useless stumps also. Where wood is wanting to furnish blanks, some of the leading shoots may be shortened back a little; and, indeed, any points may be shortened which appear spongy and immature. The trees may now be carefully trained or nailed in, and, if necessary, receive any dressing requisite for the insects.

Diseases and Insects.—See PEACH.

PLUMBA'GO. Leadwort. (From *plumbum*, lead, or a disease of the eye so called, to which a species of *Plumba'go* was applied. Nat. ord., *Leadworts* [*Plumbaginacæ*]. Linn., 5-*Pentandria* 1-*Monogynia*.)

Division of hardy herbaceous perennials, and also seeds and cuttings; cuttings of the tender kinds; the side, stubby shoots do best, but shoots at almost every age and size will strike freely in sand, under a bell-glass, in summer, and either kept cool, or with a little bottom-heat, according to the species. The tender species require the greenhouse or the stove. Sandy loam, and a little fibry peat and dried leaf-mould.

GREENHOUSE EVERGREENS.

P. Cape'nsis (Cape). 1½. Blue. November. Cape of Good Hope. 1818.

— *tristis* (dark-flowered). 1½. Brown. May. Cape of Good Hope. 1792.

STOVE EVERGREENS.

P. Mexica'na (Mexican). White. July. Mexico. 1829.

— *rhombifolia* (diamond-leaved). ½. Blue. September. S. Amer. 1826. Annual.

— *ro'sea* (rosy). 1½. Red. May. E. Ind. 1777.

— *scandens* (climbing). 3. White. July. W. Ind. 1699. Climber.

— *Zeyla'nica* (Cingalese). 2. White. June. E. Ind. 1731.

HARDY HERBACEOUS.

P. Europæ'a (European). 3. Blue. September. South Europe. 1596.

— *Larpe'ntæ* (Lady Larpent's). 2. Blue. July. China. 1845. Sir W. Hooker says this ought to be known as *Valora'dia plumbaginoides*.

PLUMIE'RIA. (Named after *Plumier*, a celebrated French botanist. Nat. ord., *Dogbanes* [*Apocynacæ*]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Cerbera*.)

Stove evergreen trees and shrubs. Cuttings of ripe shoots in spring, in sand, under a hand-light, and in bottom-heat; sandy loam and a little fibry peat. Winter temp., 50° to 55°, and rather dry; summer, 60° to 85°, with moist roots and atmosphere.

P. acumina'ta (pointed-leaved). 20. Red, yellow. July. E. Ind. 1790.

— *bicolor* (two-coloured). 25. White, yellow. August. S. Amer. 1815.

— *Blandfordia'na* (Blandford's). 19. July. S. Amer. 1825.

— *incarna'ta* (flesh-coloured). 20. Flesh. July. Peru. 1820.

— *Jameso'ni* (Jameson's). 4. Yellow and pink. Guayaquil. July.

— *Ke'rii* (Ker's). 15. Yellow. August. Mexico. 1815.

— *Lambertia'na* (Lambert's). 10. White. July. Mexico. 1819.

— *leuca'ntha* (white-flowered). 10. White. July. S. Amer. 1825.

— *macrophy'lla* (large-leaved). 10. White. July. S. Amer. 1825.

— *Milleri* (Miller's). 6. Flesh. July. W. Ind.

— *Northia'na* (North's). 7. July. S. Amer. 1820.

— *obtus'a* (blunt-leaved). 10. White. July. W. Ind. 1733.

— *parvifolia* (small-leaved). White. July. W. Ind. 1813.

— *pu'dica* (chaste-flowered). 5. Yellow. July. S. Amer.

— *purpure'a* (purple). 20. Purple. July. Peru. 1820.

— *rubra* (red). 15. Red. July. Jamaica. 1690.

— *tubercula'ta* (warted-stemmed). 6. White. August. St. Domingo. 1812.

PODALY'RIA. (A classical name. *Podalirius* was the son of *Æsculapius*. Nat. ord., *Leguminous Plants* [*Fabacæ*]. Linn., 10-*Decandria* 1-*Monogynia*. Allied to *Callistachys*.)

Greenhouse evergreen shrubs, from the Cape of Good Hope. The following, with two exceptions, are purple-flowered. Seeds in a hothed, in spring; cuttings of stubby side-shoots in sand, under a bell-glass, in April or May; sandy loam and fibry peat, well-drained. Winter temp., 40° to 48°.

P. arge'ntea (silvery). 6. White, red. April. 1789.

— *buxifolia* (box-leaved). 2. Blue. June. 1790.

— *glau'ca* (milky-green). 6. June. 1810.

— *myrtillifolia* (myrtle-leaved). 6. June. 1795.

— *olea'efolia* (olive-leaved). 4. May. 1804.

— *serice'a* (silky). 6. June. 1778.

PODOCA'RPUS. (From *pous*, a foot, and *karpus*, a fruit; long footstalks. Nat. ord., *Taxads* [*Taxacæ*]. Linn., 21-*Monæcia* 10-*Monadelphica*. Allied to the Yew.)

Evergreen cone-bearers. Cuttings of ripe shoots in sand, under a bell-glass; loam and peat. Winter temp., 40° to 45°. *Macrophy'lla*, *latifolia*, *spinulosa*, and *nuci'fera* have stood some time against walls in the climate of London. They are all good things for a winter garden.

P. Chil'na (Chilian). 40. Chili.

— *ferrugi'nea* (rusty-coloured). 40. New Zealand.

— *latifolia* (broad-leaved). 200. March. Pandua. 1828.

— *macrophy'lla* (large-leaved). 40. July. Japan. 1804.

— *Nage'ia* (Nageia). 40. Japan.

— *nuci'fera* (nut-bearing). 20. Japan. 1822.

- P. spinulo sa* (rather-spiny). 20. N. Holland. 1820.
 — *sua'vis* (oleander-leaved). 6½. Scarlet. New Zealand.
 — *tusifo'lia* (yew-leaved). 40. Peru. 1820.
 — *Tota'rra* (Totarra). 80. New Zealand.
 — *Ya'cca* (Yacca). 50. W. Ind. 1818.

POD-FERN. *Elloboca'rpus*.

PODOLE'PIS. (From *pous*, a foot, and *lepis*, a scale; flower-stalks scaly. Nat. ord., *Compositæ* [Asteraceæ]. Linn., 19-*Syngenesia* 2-*Superflua*. Allied to *Helichrysum*.)

Half-hardy herbaceous perennial. Seeds in a little heat, in spring; division in spring, as growth commences; sandy loam, and a little leaf-mould or peat; the protection of a cold pit in winter. There are several species besides the following:—

- P. gracilis* (slender). 3. Pink. August. N. S. Wales. 1826.

PODOLO'BIIUM. (From *pous*, a foot, and *lobos*, a pod; the seed-pod on a foot-stalk within the calyx. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 10-*Decandria* 1-*Monogynia*. Allied to *Gompholobium*.)

Greenhouse, yellow-flowered evergreens, from New Holland. Seeds, after being immersed for a day in warm water, in a hotbed, in spring; cuttings of the points of shoots, or small, stubby side-shoots, in sand, under a bell-glass, in April or May; sandy peat and fibry loam, with a little charcoal and broken freestone. Winter temp., 40° to 48°.

- P. berberifo'lium* (berberry-leaved). April. 1839.
 — *heterophy'llum* (various-leaved). 3. June. 1824.
 — *scandens* (climbing). 3. April. 1824.
 — *humifusum* (trailing). 1. April. 1824.
 — *stauruphy'llum* (cross-leaved). 2. April. 1822.
 — *triloba'tum* (three-lobed). 2. April. 1791.

PODOPHY'LLUM. Duck's-foot. (Contracted from *anapodophy'llum*, or duck's-foot-leaved. Nat. ord., *Crowfoots* [Ranunculaceæ]. Linn., 13-*Polyandria* 1-*Monogynia*. Allied to *Actea*.)

Hardy herbaceous perennials. Division at the root; moist, marshy peat, and a shady situation. *P. Emodi* (Emodi). May. California. 1845.
 — *pelka'tum* (shield-leaved. *May Apple*). 4. White. May. N. Amer. 1664.

PODOPTERUS. (From *pous*, a foot, and *pterus*, a wing; the mode of growth. Nat. ord., *Buckwheats* [Polygonaceæ]. Linn., 6-*Hexandria* 3-*Trigynia*.)

Greenhouse evergreen. Cuttings of half-ripened shoots under a glass, in sandy loam, in April; sandy, fibry loam, and a little peat. Winter temp., 40° to 48°.

- P. Mexicana* (Mexican). 2. July. Mexico. 1825.

PODOSPERMUM. (From *pous*, a foot, and *sperma*, a seed. Nat. ord., *Compositæ* [Asteraceæ]. Linn., 19-*Syngenesia* 1-*Æqualis*. Allied to *Scorzonera*.)

Hardy, yellow-flowered plants, blooming in June. Biennials and annuals, by seeds in the open border, in April; perennials, by a similar mode, and also by division of the roots in spring.

HARDY BIENNIALS.

- P. angustifo'lium* (narrow-leaved). South Europe. 1828.
 — *lacinia'tum* (jagged-leaved). 2. South Europe. 1640.
 — *octangula're* (eight-sided). 1. South Europe. 1818.
 — *pu'milum* (dwarf). 1. Spain. 1816. Annual.
 — *resedifo'lium* (mignonette-leaved). 1½. South Europe. 1818.

HARDY HERBACEOUS.

- P. calcitrapifo'lium* (caltrop-leaved). 1. Levant. 1820.
 — *ca'num* (hoary). Russia. 1838.
 — *coronopifo'lium* (buckhorn-leaved). 1. N. Africa. 1818.
 — *interme'dium* (intermediate). Persia.
 — *taraxaci'fo'lium* (dandelion-leaved). 1. Bohemia. 1820.

PÆDISCA ANGUSTIORANA. Apricot Moth. As soon in May as one of the leaves of a Peach, Nectarine, or Apricot is seen rolled up, destroy the little caterpillar within the roll, and watch for others, because the eggs of the moth from which that caterpillar came continue to hatch for several weeks. The moth is the Narrow-winged Red Bar, *Pædisca angustiorana*. The caterpillars appear during May and June: they are about half an inch long, are pale yellowish-green, and with the head brownish-yellow. A few bristles are scattered over the body. It is a very active caterpillar, wriggling about in most varied contortions when disturbed, crawling with equal facility backwards and forwards, and letting itself down by a single thread from its mouth. It passes into the state of a brown, shining chrysalis, rolled up in the same leaves, and from this the moth comes forth in July. The moth is very small, not longer than a fourth of an inch. The fore-wings are reddish-brown, in bands of various degrees of darkness. The hind-wings are dusky. It deposits its eggs, probably, upon the branches, where they remain all the winter, and the caterpillars are most frequently found upon the Apricot.

POET'S CASSIA. *Osy'ris*.

POGO'GYNE. (From *pogon*, a beard, and *gyne*, the female organ; fringe on the style. Nat. ord., *Labiates* [Lamiaceæ]. Linn., 14-*Didynamia* 1-*Gymnospermia*. Allied to *Melissa*.)

Hardy annual. Cultivated like *Podospermum*. *P. multiflo'ra* (many-flowered). 3. Pale lilac. August. California. 1836.

POINCI'NA. Flower Fence. (Named after *Poinci*, once governor of the Antilles. Nat. ord., *Leguminous Plants* [Fa-

bacæe]. Linn., 10-*Decandria* 1-*Monogynia*. Allied to *Casalpinia*.)

Stove evergreen shrubs. Seeds in a brisk bottom-heat, in spring; cuttings of stubby young shoots in sand, under a bell-glass, in heat; rich, sandy, fibry loam. Winter temp., 50° to 60°; summer, 60° to 90°.

P. elata (tall). 15. Yellow. E. Ind. 1778.
— *Gilliesii* (Gillies's). 4. Yellow. July. Mendoza. 1829.

— *insignis* (noble). 15. Copper. S. Amer. 1823.
— *pulcherrima* (very fair). 10. Red, yellow. July. E. Ind. 1691.

— *regia* (royal). Crimson. Madagascar. 1828.

POINSETTIA. (Named after its discoverer, M. Poinsette. Nat. ord., *Spurge-worts* [Euphorbiaceæ]. Linn., 21-*Monæcia* 1-*Monandria*. Allied to the Euphorbia.)

Stove Mexican evergreen shrubs. Cuttings taken off in spring, or when the old plant has done flowering; dried at the base after cutting to a joint, and after several days inserted in sandy loam, in a gentle hotbed; sandy loam, and a little peat and leaf-mould. Winter temp., 50° to 60°; summer, 60° to 85°. When done flowering, they may be kept dry, in a temperature of from 40° to 45°, if not above a period of two or three months.

P. pulcherrima (fairest). 4. Scarlet. March. 1834.
— *albida* (white-bracted). 4. White. December. 1834.

POINTING-IN is mixing manure with the top inch or two of the soil by means of the point of a spade or fork. This is done when roots, which ought not to be disturbed, are near the surface.

POIRETIA. A stove evergreen climber, really a *Hovea*.

P. scandens (climbing). 6. March. *Caracas*. 1823.

POISON-BULB. *Brunsvigia* *Coranica* and *toxicaria*, and *Oriinum* *Asiaticum*.

POISON-NUT. *Strychnos* *nux-vomica*.

POISON-OAK. *Rhus* *toxicodendron*.

POISON-SUMACH, or POISON-WOOD. *Rhus* *venenata*.

POISONOUS PLANTS. Gardeners should be much more careful than they usually are in handling the plants they cultivate, for many of them have deadly qualities. M. Neumann, chief gardener of the Paris Jardin des Plantes, says that pruning-knives and hands washed in a tank after they have been employed upon some of the exotics will destroy the fish it contains. *Hippomane* *biglandulosa*, the *Manchineel*, the *Tanghin*, *Sapium* *lau-rocerasus*, and *Camocladia* *denticata*, are equally deleterious to man. Gardeners who have merely rubbed the leaves of the latter between their fingers have had swollen bodies and temporary blindness. Wounds from pruning-knives smeared with the juices of such plants are like those from poisoned arrows.

Poisons. Soils containing obnoxious ingredients are certain introducers of disease and premature death. An excess of oxide of iron, as when the roots of the apple and pear get into an iron-red gravelly subsoil, always causes canker. In the neighbourhood of copper-smelting furnaces, not only are cattle subjected to swollen joints and other unusual diseases, causing decrepitude and death, but the plants also around are subject to sudden visitations, to irregular growths, and to unwarned destruction; and a crop once vigorous will suddenly wither as if swept over by a blast. There is no doubt of this arising from the salts of copper, which impregnate the soil irregularly, as the winds may have borne them sublimed from the furnaces, and the experiments of Sennebier have shown that of all salts those of copper are the most fatal to plants. That they can be poisoned, and by many of those substances, narcotic as well as corrosive, which are fatal to animals, has been shown by the experiments of M. F. Marcet and others.

The metallic poisons being absorbed, are conveyed to the different parts of the plant, and alter or destroy its tissue. The vegetable poisons, such as opium, strychnia, prussic acid, belladonna, alcohol, and oxalic acid, which act fatally upon the nervous system of animals, also cause the death of plants.

The poisonous substance is absorbed into the plant's system, and proves injurious when merely applied to its branches or stem, almost as much as if placed in contact with the roots. Ulcerations and canker are exasperated if lime be put upon the wounds, and when Dr. Hales made a Golden Rennet Apple absorb a quart of camphorated spirits of wine through one of its branches, one-half of the tree was destroyed.

POIVREA. (Named after N. Poirer, a Frenchman. Nat. ord., *Myrobolans* [Combretaceæ]. Linn., 10-*Decandria* 1-*Monogynia*. Allied to *Combretum*.)

Stove evergreen climbers. Cuttings of short, stubby side-shoots, as fresh growth commences, in spring, in sand, under a bell-glass, and with a little bottom-heat; sandy loam and fibry peat, with pieces of charcoal. Winter temp., 55° to 60°; summer, 60° to 85°.

P. Afzelii (Afzelius's). 10. Scarlet. April. Sierra Leone. 1826.

— *barbata* (bearded-petated). 10. White. Maranhã. 1820.

- P. coccinea* (scarlet). 20. Scarlet. September. Madagascar. 1818.
 — *como'sa* (tufted). 20. Purple. Sierra Leone. 1822.
 — *dodecandra* (ten-stamened). 20. White. April. E. Ind. 1826.
 — *intermedia* (intermediate). 15. Scarlet. April. Sierra Leone. 1823.
 — *macrophylla* (large-leaved). Scarlet. April. Isle of Bourbon. 1838.

POLANI'SIA. (From *polys*, many, and *anisos*, unequal; many stamens of unequal lengths. Nat. ord., *Capparids* [Capparidaceæ]. Linn., 11-Dodecandria 1-Monogynia. Allied to Cleome.)

Hardy annuals, flowering in June. Seeds in a slight hotbed, under a glass frame, in March and April, and pricked out and finally placed in the open ground in the beginning of June.

- P. Cheladonii* (Cheladon's). 1½. Rose. E. Ind. 1792.
 — *dodecandra* (twelve-anthered). 1½. White. E. Ind. 1795.
 — *graveolens* (strong-smelling). 1½. Pinkish. Canada.
 — *uniglandulosa* (single-glanded). 1. White, red. Mexico. 1823.
 — *viscosa* (clammy). 2. Yellow. E. Ind. 1790.
 — *icosaandra* (twenty-anthered). 1½. Yellow. Ceylon. 1790.

POLEMONIUM. Greek Valerian. (From *polemos*, war; according to Pliny, a dispute about its discovery led to warfare. Nat. ord., *Phloxworts* [Polemoniaceæ]. Linn., 5-Pentandria 1-Monogynia.)

Hardy herbaceous perennials. Seeds; but generally division of the plant; common garden-soil.

- P. caruleum* (blue). 2. Blue. June. Britain.
 — *album* (white). 2. White. June. Britain.
 — *grandiflorum* (large-flowered). Brown. June. India. Biennial.
 — *maculatum* (spotted). 2. Striped. June. Britain.
 — *piliferum* (hairy). Blue. June. N. Amer.
 — *variegatum* (variegated-leaved). 1. Blue. June. Britain.
 — *gracile* (slender). 1½. Blue. June. Dahuria. 1818.
 — *humile* (lowly). Blue. August. N. Amer. 1826.
 — *laetum* (milky-flowered). White. May. 1829.
 — *Mexicanum* (Mexican). 1. Blue. April. Mexico. 1817.
 — *moschatum* (musky). Black. June. N. Amer. 1827.
 — *pulcherrimum* (prettiest). ¾. Blue. July. N. Amer. 1827.
 — *reptans* (creeping). ¼. Lilac, blue. April. N. Amer. 1758.
 — *maius* (larger). 1. Dark blue. April.
 — *Richardsoni* (Richardson's). Pale blue. September. N. Amer. 1826.
 — *Sibiricum* (Siberian). 2. White. June. Siberia. 1800.
 — *villosum* (shaggy). Pale blue. August. Siberia. 1826.

POLLANTHES. Tuberose. (From *polis*, a city, and *anthos*, a flower; referring to its general use in city decoration. Nat. ord., *Lilyworts* [Liliaceæ]. Linn., 6-Hexandria 1-Monogynia.)

Greenhouse bulbs. Offset bulbs; old bulbs are generally obtained from Italy every year, and are planted in rich, sandy loam; and when growth has fairly commenced, they get the advantage of a slight hotbed to forward them (but the bulb, and not the top, should be kept warm), before getting them ready for rooms or greenhouses.

- P. gracilis* (slender). 3. Pale yellow. August. Brazil. 1822.
 — *tuberosa* (tuberous). 3. White. August. E. Ind. 1629.
 — *flore-pleno* (double-flowered). 3. White. August.

POLY, or GERMANDER. *Teucrium*.

POLYACHYRUS. (From *polys*, many, and *achuron*, chaff. Nat. ord., *Composites* [Asteraceæ]. Linn., 19-Syngenesia 1-Æqualis.)

Half-hardy herbaceous perennial. Division and cuttings of the young shoots in spring, in sandy soil; the protection of a cold frame, or some analogous place, in winter.

- P. Poppigii* (Poppig's). Blue. June. Chili. 1830.

POLYANTHUS. This is a variety, but a very permanent one, of the common Primrose (*Primula vulgaris*). There are many varieties, and their excellence as florists' flowers may be determined by the following rules:—

The *Pip*.—1. This should be perfectly flat and round, slightly scalloped on the edge, and three quarters of an inch in diameter.

2. It should be divided in (five or) six places, apparently forming (five or) six flower-leaves, each indented in the centre to make it a kind of heart-shaped end; but the indentations must not reach the yellow eye.

3. The *indenture* in the centre of the apparent flower-leaves should be exactly the same depth as the indenture formed by the join of these flower-leaves, so that it should not be known, by the form of the flower, which is the actual division and which is the indenture; in other words, which is the side and which the centre of the flower-leaf; and all the indentures should be as slight as possible, to preserve the character.

4. The flower should be divided thus: the *yellow tube* in the centre being measured, the *yellow eye*, round the tube, should be the same width as its diameter; and the *ground colour* of the flower should be the same width; or draw with the compasses, opened to a sixteenth of an inch apart, a circle for the tube or centre, open them to three-sixteenths, and draw another circle for the eye, then open them further to five-sixteenths, and draw a third circle for

the ground or dark colour. Beyond these circles there is a *yellow lacing*, which should reach round every flower-leaf to the yellow eye, and down the centre of every petal to the eye, and so much like the edging that the flower should appear to have (ten or) twelve similar petals. The ends of these (ten or) twelve should be blunted, and rounded like so many semicircles, so that the outline of the circle should be interrupted as little as possible.

5. *The tube* (one-fifth the width of the whole flower) should be nearly filled up with the six anthers, which are technically called the *thrum* (have an elevated edge, rendering it *trumpet-eyed*), and the flower should not exhibit the pistil.

6. *The edging* round and down the centre of the petals formed by the divisions should be of even width all the way, and uniformly of the same shade of sulphur, lemon, or yellow as the eye, and there must not be two shades of yellow in the eye.

7. *The ground colour* may be just what anybody likes best, but clear, well-defined, perfectly smooth at the edges inside next the eye, so as to form a circle, and outside, next the lacing. A black or a crimson ground, being scarce, is desirable; but the quality of the colour as to clearness, rather than the colour itself, constitutes the property.

The Plant.—1. *The stem* should be strong, straight, elastic, and from four to six inches in length.

2. *The footstalks* of the flower should be of such length as to bring all the flowers well together.

3. *The truss* should rise from the centre of the foliage, comprise seven or more flowers, and be neatly arranged to be seen all at once.

4. *The foliage* should be dark green, short, broad, thick, and cover the pot well; but erect and clustering round, though lower than the truss.

The Pair, or Collection.—*The pair*, or pan of more, should comprise flowers of different and distinct colours, either the ground colour or the yellow of each being sufficiently different from the rest to be well distinguished. The whole should be so near of a height as to range the heads of bloom well together. The great fault of the Polyanthus now, even among the best sorts, is that the divisions between the petals are so wide as to make the flower

look starry, whereas there should be no more gap where the division is than is in the indentation of the petal itself.—*Glenny's Properties of Flowers, &c.*

Culture.—The Polyanthus may be cultivated exactly as the Auricula.

POLYBO'TRYA. (From *polys*, many, and *botrys*, a raceme; the appearance of the fertile or seed-bearing frond. Nat. ord., *Ferns* [Polypodiaceæ]. Linn, 24-*Cryptogamia* 1-*Filices*.)

Stove, brown-spored Ferns. See FERNS.

P. acumina'ta (pointed-leaved). July. W. Ind. 1831.

—*apiifo'lia* (parsley-leaved). July. I. of Luzon.

—*appendicula'ta* (appendaged). July. W. Ind.

—*articula'ta* (jointed). July. Isle of Luzon.

—*cervi'na* (hart's-tongue). 2. April. Jamaica. 1823.

—*Corcovade'nsis* (Corcovado). July. Brazil. 1837.

—*inci'sa* (cut-leaved). July. W. Ind.

—*interme'dia* (intermediate). April. Isle of Luzon.

—*Osmunda'cea* (Osmunda-like). July. Mexico.

—*serrula'ta* (saw-edged). July. Isle of Luzon.

—*specio'sa* (showy). July. W. Ind.

—*vivi'para* (viviparous). 3. June. W. Ind. 1823.

POLY'GALA. Milkwort. (From *polys*, much, and *gala*, milk; abundance of milky juice. Nat. ord., *Milkworts* [Polygalaceæ]. Linn., 17-*Diadelphica* 3-*Octandria*.)

Annuals, by seed in a peaty border; herbaceous perennials, seeds and divisions in similar soil, or sandy loam and leaf-mould; hardy shrubs and under-shrubs, as *chamæbu'xis*, by cuttings and suckers, and which species, in particular, likes a little chalk with the peat and leaf-mould; tender shrubs, by cuttings of the side-shoots, when 2½ inches long, taken off close to the stem, and inserted in sand, under a bell-glass; for all these, peat three parts, and loam one part. Many of them, from their beauty and comparative hardiness, should be tried against conservative walls, such as *latifo'lia*, *myrtifo'lia grandifo'ra*, *specio'sa*, &c.

HARDY ANNUALS.

P. fastigia'ta (peaked). ½. Red. June. N. Amer. 1824.

—*Monspeli'aca* (Montpelier). ½. Blue. June. Mediterranean.

—*purpu'rea* (purple). Purple. June. N. Amer. 1739.

—*umbello'ta* (umbelled). 1. Purple. July. Cape of Good Hope. Stove.

HARDY HERBACEOUS.

P. al'ba (white). White. June. Louisiana. 1827.

—*alpe'stris* (alpine). Blue. June. Switzerland.

—*ama'ra* (bitter). ½. Blue. June. Europe. 1775.

—*Austri'aca* (Austrian). Purple. June. Germany.

—*chamæbu'xis* (bastard box). ½. Yellow. May. Austria. 1658. Evergreen.

—*gramini'fo'lia* (grass-leaved). ½. Lilac, yellow. June. Carolina. 1824.

—*ma'jor* (larger. Austrian). 1. Red. July. Austria. 1739.

—*rube'lla* (reddish). ½. Pale red. June. N. Amer. 1828.

GREENHOUSE EVERGREENS.

- P. attenuata* (thin). 3. Purple. July. Cape of Good Hope. 1820.
 — *Borboniæfolia* (Borbonia-leaved). 3. Purple. Cape of Good Hope. 1790.
 — *bracteolata* (small-bracted). 6. Purple. July. Cape of Good Hope. 1713.
 — *Burmanni* (Burmann's). 3. Purple. June. Cape of Good Hope. 1800.
 — *cordifolia* (heart-leaved). 3. Purple. May. Cape of Good Hope. 1791.
 — *Garcinii* (Garcin's). 3. Purple. July. Cape of Good Hope.
 — *genistoides* (broom-like). 3. Purple. July. Cape of Good Hope. 1823.
 — *gracilis* (slender). Blue. May. New Zealand.
 — *intermedia* (intermediate). 3. Purple. June. Cape of Good Hope.
 — *lancoolata* (spear-head-leaved). 3. Purple. July. Cape of Good Hope. 1820.
 — *latifolia* (broad-leaved). 1½. Purple. May. Cape of Good Hope. 1820.
 — *ligularis* (strap-leaved). 1½. Purple. June. Cape of Good Hope. 1820.
 — *littifolia* (lily-leaved). 4. Purple. July. Cape of Good Hope. 1823.
 — *myrtifolia* (myrtle-leaved). 3. Purple. July. Cape of Good Hope. 1707.
 — *grandiflora* (large-flowered). 4. Purple. July. Cape of Good Hope. 1818.
 — *nummularia* (moneywort-leaved). 3. Purple. Cape of Good Hope. 1812.
 — *oppositifolia* (opposite-leaved). 2. Purple. June. Cape of Good Hope. 1790.
 — *major* (larger). 3. Purple. July. Cape of Good Hope.
 — *pinifolia* (pine-leaved). 3. Purple. July. Cape of Good Hope. 1823.
 — *simplex* (simple-stemmed). 4. Purple. July. Cape of Good Hope. 1816.
 — *speciosa* (showy). 6. Purple. July. Cape of Good Hope. 1814.
 — *tortifolia* (cylindrical-leaved). 3. Purple. August. Cape of Good Hope. 1791.
 — *tetragona* (four-angled). 2. Purple. Cape of Good Hope. 1820.

POLYGONÆTUM. Solomon's Seal. (From *polys*, many, and *gonu*, a joint, or kee; numerous joints of the stem. Nat. ord., *Lilyworts* [Liliacæ]. Linn., 6 *Hexandria* 1-*Monogynia*. Allied to *Convallaria*.)

Hardy, white-flowered, herbaceous perennial. Seeds and divisions in spring; rich, light soil. *Leptophyllum* and *oppositifolium* require protection in winter.

- P. angustifolium* (narrow-leaved). 1. May. N. Amer. 1824.
 — *brachiatum* (bracted). 1½. July. Switzerland. 1827.
 — *canaliculatum* (channelled). 1. June. N. Amer. 1819.
 — *hirtum* (hairy). 1. May. N. Amer. 1819.
 — *latifolium* (broad-leaved). 3. May. Germany. 1802.
 — *leptophyllum* (fine-leaved). 2. June. Nepal. 1816.
 — *macrophyllum* (large-leaved). 3. May. N. Amer. 1800.
 — *multiflorum* (many-flowered). 2. June. Britain.
 — *oppositifolium* (opposite-leaved). 1. April. Nepal. 1822.
 — *polyanthemum* (many-flowered). 1. May. Caucasus. 1826.

- P. pubescens* (downy). 1. May. N. Amer. 1819.
 — *verticillatum* (whorled-leaved). 1. May. Scotland.
 — *virgare* (common). 2. May. England.
 — *folre-ple'no* (double-flowered). 2. June. England.
 — *minor* (smaller). 1. June. England.

POLYGO'NIUM. (From *polys*, many, and *gonu*, a knee; numerous joints of the stem. Nat. ord., *Buckwheats* [Polygonacæ]. Linn., 8-*Octandria* 3-*Trigynia*.)

Annuals, seeds in the open border, in March and April; herbaceous perennials, also by seeds, as for annuals, and division of the roots; tender annuals require the assistance of a hotbed before transplanting in May; greenhouse shrubs, by cuttings in sandy soil, under a glass, and grown in fibry loam, with a little peat; several of them, such as *adpressum*, which sends out very long shoots, should be tried against a wall. The fruit of several, such as *Tataricum* and *fagopyrum*, are used for tarts.

GREENHOUSE EVERGREENS AND

HERBACEOUS,

- P. adpressum* (compressed). 2. Red. July. N. Holland. 1822.
 — *Brunonis* (Brown's). ½. Pink. August. North of India. 1845.
 — *decepiens* (deceiving). 2. Red. July. N. Holland. 1822. Herbaceous.
 — *gracile* (slender). 1. Red. July. N. Holland. 1822. Herbaceous.
 — *herniarioides* (herniaria-like). ½. July. Egypt. 1827.
 — *tinctorum* (dyer's). 2. Red. July. China. 1776. Biennial.

HARDY HERBACEOUS,

- P. affine* (kindred). 2. Red. June. Nepal. 1922.
 — *alpinum* (alpine). 2. White. July. Switzerland. 1816.
 — *amphibium* (amphibious). 1. Pink. July. Britain. Aquatic.
 — *hirsutum* (hairy). 1. Red. July. Britain.
 — *amplexicaule* (stem-clasping). Red. July. India. 1837.
 — *barbatum* (bearded). 2. White. July. China. 1819. Trailer.
 — *coccineum* (scarlet). 1. Scarlet. July. N. Amer. 1819.
 — *elegans* (elegant). 2. White, green. June. Nepal. 1824. Trailer.
 — *ellipticum* (oval-leaved). 2. Pink. June. Siberia. 1807.
 — *glaucum* (milky-green). 1. N. Amer.
 — *Laxmanni* (Laxmann's). 1. White. June. Dahuria. 1800.
 — *macrophyllum* (large-leaved). 1½. Purple. June. Nepal. 1820.
 — *sericeum* (silky). ½. White. July. Siberia. 1820.
 — *setosum* (bristly). 1. White. July. Asia Minor. 1817.
 — *vaginifolium* (whortleberry-leaved). Pink. July. Himalaya. 1845. Trailing evergreen.
 — *Virginianum* (Virginian). 3. White. August. N. Amer. 1810.
 — *volcanicum* (volcanic). Mexico. 1831. Trailing evergreen.

HARDY ANNUALS,

- P. arena'rium* (sand). 1. Purple. June. Hungary. 1807. Trailer.
 — *fagopyrum* (buckwheat). 2. Pink. July. England.

- P. orthostachyum* (bundle-flowered). 2. Red. July. Siberia. 1818.
 — *mille* (mild. Water-pepper). 1. Red. July. N. Amer. 1800. Aquatic.
 — *orientale* (eastern). 6. Red. August. E. Ind. 1707.
 — *album* (white). 4. White. August. E. Ind. 1781.
 — *Pennsylvanicum* (Pennsylvanian). 1. Red. July. N. Amer. 1800.
 — *persicarioides* (persicaria-like). 1½. Pink. July. Mexico. 1816.
 — *salsuginum* (briny). 1. Pink. June. Caucasus. 1817. Aquatic.
 — *Senegalensis* (Senegal). 1½. Red. July. Guinea. 1825. Aquatic.

POLYPODIUM. Polypody. (From *polys*, many, and *pous*, a foot; numerous foot-like divisions of the creeping stems. Nat. ord., Ferns [Polypodiaceæ]. Linn., 24-Cryptogamia 1-Filices.)

Brown-spored Ferns. See FERNS.

HARDY HERBACEOUS.

- P. alpestre* (alpine). ½. July. 1820.
 — *culeacum* (spur-branched). ¾. July. Britain.
 — *connectile* (connected). 1. June. Canada. 1823.
 — *hexagonopterum* (six-angled-winged). 1. July. N. Amer. 1811.
 — *phlegopteris* (sun-fern). ¾. June. Britain.
 — *pustulatum* (pimpled). 1. June. New Zealand. 1820. Greenhouse.
 — *Virginicum* (Virginian). 1. July. N. Amer.
 — *virgata* (common). 1. July. Britain.
 — *Cambrium* (Welsh). 1. July. Britain.

STOVE HERBACEOUS.

- P. angustifolium* (narrow-leaved). ¾. May. W. Ind. 1820.
 — *areolatum* (areolated). 1. Brazil. 1824.
 — *asperulum* (roughish). August. Isle of Luzon. 1842.
 — *asplenifolium* (spleenwort-leaved). 2. July. Martinico. 1790.
 — *attenuatum* (thin). ¾. May. N. Holland. 1823.
 — *aurum* (golden). 3. March. W. Ind. 1742.
 — *auriculatum* (eared). 2. July. Brazil. 1824.
 — *Billardieri* (La Billardièrè's). 1. May. Van Diemen's Land. 1823.
 — *Catharinæ* (St. Catherine's). 1. Brazil. 1824.
 — *contiguum* (adjoining). April. Isle of Luzon. 1842.
 — *crenatum* (scalloped). 1½. August. Jamaica. 1823.
 — *crassifolium* (thick-leaved). 3. August. W. Ind. 1823.
 — *curvatum* (curved). 1. August. Jamaica. 1823.
 — *decumanum* (tall). 5. August. Brazil. 1818.
 — *deflexum* (bent-down). 2. July. 1830.
 — *disimile* (unlike). 2. July. Brazil. 1820.
 — *dinegens* (spreading). June. W. Ind. 1841.
 — *drepanum* (sickle). 1. Madeira.
 — *dryopteris* (dryopteris). 1. July. Britain.
 — *effusum* (spreading). 3. November. Jamaica. 1769.
 — *fraxinifolium* (ash-leaved). 2. August. Caraccas. 1817.
 — *hastatum* (halbert-shaped). 2. July. Jamaica. 1820.
 — *heterophyllum* (variable-leaved). ¾. July. W. Ind. 1820.
 — *inacnum* (hoary). ¾. August. S. Amer. 1811.
 — *incisum* (cut). 1. July. W. Ind. 1810.
 — *iridifolium* (iris-leaved). 1½. September.
 — *Jamaicensis* (Jamaica). 1½. June. Jamaica. 1820.
 — *juglandifolium* (walnut-leaved). 1½. July. S. Amer. 1822.

- P. lachnopo'dium* (downy-footed). 4. June. Jamaica. 1843.
 — *lancofolium* (spear-headed). 1. August. W. Ind. 1812.
 — *latipes* (broad-stalked). 1½. October. Brazil.
 — *longifolium* (long-leaved). 3. July. Brazil. 1819.
 — *lycopodioides* (club-moss-like). ¾. July. W. Ind. 1793.
 — *menisclifolium* (meniscium-leaved). July. Brazil. 1837.
 — *neritifolium* (nerium-leaved). July. Brazil. 1837.
 — *nutans* (nodding). July. Malacca.
 — *obliquatum* (twisted). July. Isle of Luzon. 1841.
 — *olivaecum* (olive-like). 1. S. Amer.
 — *Otitis* (Otitis). ¾. October. Brazil. 1834.
 — *Owarieense* (Owarian). ¾. Sierra Leone.
 — *papillosum* (nippled). April. Isle of Luzon.
 — *paradisæ* (paradise). May. Brazil. 1841.
 — *pectinatum* (comb-leaved). 1½. July. W. Ind. 1793.
 — *phyllitidis* (hart's-tongue). 2. July. W. Ind. 1793.
 — *phymatodes* (warted). ¾. July. E. Ind. 1823.
 — *piloselloides* (mouse-ear-like). ¾. August. W. Ind. 1793.
 — *plantaginæum* (plantain-like). 1. July. W. Ind. 1817.
 — *plumula* (feathered). 1. July. S. Amer. 1824.
 — *polyanthum* (many-flowered). Brazil. 1824.
 — *proliferum* (proliferous). 1. Madeira.
 — *pruinatum* (frosted-leaved). 2. September. Jamaica. 1793.
 — *quercifolium* (oak-leaved). 1½. September. E. Ind. 1824.
 — *recedens* (receding). June. Isle of Luzon.
 — *refractum* (broken). July. Brazil. 1837.
 — *repandum* (wavy-edged). 1½. August. Jamaica. 1820.
 — *repens* (creeping). 2. May. W. Ind. 1810.
 — *salicifolium* (willow-leaved). ¾. August. Brazil.
 — *salinum* (holy). 1½. July. W. Ind. 1820.
 — *Schku'rrii* (Schku'r's). 1. July. Brazil. 1824.
 — *scopolendrioides* (scopolendrium-like). 1½. May. W. Ind. 1820.
 — *serpens* (creeping). ¾. W. Ind. 1816.
 — *serriforme* (saw-shaped). July. Isle of Luzon. 1841.
 — *sertularioides* (sertularia-like). April. Malacca.
 — *simile* (similar). 2.
 — *stigma'sum* (stigma-like). 1. May. E. Ind. 1823.
 — *sublaetatum* (slightly-sickled). July. Isle of Luzon. 1839.
 — *subpetiolatum* (short-stalked). 2. May. Mexico. 1845.
 — *tanic'sum* (banded). 2. August. S. Amer. 1815.
 — *tenellum* (slender). 1½. N. Holland. 1823.
 — *tetragnomum* (four-angled). June. Brazil. 1827.
 — *trichoides* (hair-like). July. Isle of Luzon. 1840.
 — *trichomanoides* (trichomanes-like). 1. August. W. Ind. 1822.
 — *trifurcatum* (three-forked). ¾. July. W. Ind. 1820.
 — *tuberosum* (tuberose). 2. All. W. Ind.
 — *vacciniifolium* (whortleberry-leaved). ¾. September. W. Ind.

POLYPO'RA. (From *polys*, many, and *spora*, seed; many-seeded capsules. Nat. ord., Teaworts [Ternströmiaceæ]. Linn., 16-Monadelphia 8-Polyandria, Allied to Camellia.)

Stove evergreen shrub. Cuttings of half-ripened shoots in sand, under a bell-glass; also by grafting, or budding, on the *Camellia Japonica*;

sandy, fibry loam, and a little peat and leaf-mould. Winter temp., 50° to 55°; summer, 60° to 80°. *P. axillaris* (axillary-flowered). 3. White. March. E. Ind. 1818.

POLYSTICHUM. (From *polys*, many, and *stichus*, a row; numerous rows of spore-cases. Nat. ord., *Ferns* [Polypodiaceæ]. Linn., 24-*Cryptogamia* 1-*Filices*.)

Stove, yellow-spored Ferns. See **FERNs**.
P. aristatum (awned). 1. July. Norfolk Island.
— auriculatum (eared). July. E. Ind. 1793.
— Capeense (Cape). June. Cape of Good Hope. 1823.
— conifolium (hemlock-leaved). 1½. June. E. Ind. 1841.
— denticulatum (toothed). July. Jamaica.
— discretum (parted). May. Nepaul.
— drepanum (sickle-fronded). June. Madeira. 1822.
— falcinellum (small-sickle). May. W. Ind.
— glandulosum (glanded). June.
— hispidum (bristly). July. New Zealand. 1845.
— mucronatum (sharp-pointed). Jamaica. 1838.
— murinum (armed). May. Jamaica. 1839.
— obtusum (blunt). June. Isle of Luzon.
— proliferum (proliferous). July. Brazil. 1842.
— pungens (stinging). May. Cape of Good Hope. 1823.
— rhomboideum (diamond-leaved). April. E. Ind.
— speciosum (showy). July. Nepaul.
— vestitum (clothed). June. Van Diemen's Land. 1842.

POMADERRIS. (From *poma*, a lid, and *derris*, a skin; the membranous covering of the seed-vessel. Nat. ord., *Rhamnads* [Rhamnaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*.)

Greenhouse, New Holland, evergreen shrubs; yellow-flowered, except where otherwise stated. Cuttings of half-ripened shoots cut to a joint, dried at the base, and inserted in sand, under a glass; peat and sandy loam. Winter temp., 38° to 45°. *Elliptica*, with the exception of having creamy-like flowers, resembles the *Ceanothus azu-reus*, and no doubt would prove almost as hardy against a wall.

P. acuminata (pointed-leaved). 80. June. 1816.
— Andromedafolia (Andromeda-leaved). 5. June. 1824.
— discolor (two-coloured). 5. Whitish. April. 1814.
— globulosa (globulose). 6. July. 1803.
— lanigera (woolly). 3. April. 1806.
— ledifolia (ledum-leaved). 2. April. 1824.
— ligustrina (privet-like). White. June. 1826.
— viridifolia (greenish-brown). April. 1821.
— Wendlandiana (Wendland's). 6. April. 1810.

POMARIA. (Named after *Pomar*, a Spanish physician. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 10-*Decandria* 1-*Monogynia*. Allied to *Cæsalpinia*.)

Greenhouse evergreen shrub. Seeds in a hot-bed, in spring; cuttings of half-ripened shoots in May, in sand, under a bell-glass; sandy loam and fibry peat. Winter temp., 40° to 48°.
P. glandulosa (glanded). 6. Yellow. May. New Spain. 1826.

PO'MAX. (From *poma*, a lid; the operculum, or covering of the seed-vessel. Nat. ord., *Cinchonads* [Cinchonaceæ]. Linn., 4-*Tetrandria* 1-*Monogynia*. Allied to *Opercularia*.)

Greenhouse evergreen. See **OPERCULARIA**.
P. hirta (hairy). 1. White, green. July. N. Holland. 1826.

POMEGRANATE. *Punica*.

POMPION. *Cucurbita*.

PONCELETIA. (Named after *M. Poncelet*, author of a treatise on Wheat. Nat. ord., *Epacrids* [Epacridaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Epacris*.)

Greenhouse evergreen. For culture, see **EPACRIS**.

P. Sprengeloides (Sprengelia-like). 1. May. N. S. Wales. 1826.

PONDS are reservoirs of water dug out of the soil, and made retentive by puddling with clay their bottoms and sides. Puddling is necessary in almost all instances, and the mode of proceeding is thus detailed by Mr. Marnock, in the *United Gardeners' Journal*. When the excavation is formed, or partially so, the bottom puddle near the outer edge is formed, and upon this is raised the upright or side puddle; and as this proceeds, the ordinary clay or earth is raised at the same time, by which means the upright puddle is retained in its place; and ultimately the sides, being formed in a sloping direction, admit of being covered with gravel or sand, and may be walked upon, or stakes may be driven to a considerable depth without reaching the puddle, or in any way injuring it. This can never be the case if the puddle, as is sometimes done, be laid upon the sloping side of the pond. The sides may slope rapidly, or the reverse. If the slope be considerable, sand or gravel, to give a clean appearance, will be more likely to be retained upon the facing; plants can be more easily fixed and cultivated; goldfish, also, find in these shallow, gravelly parts under the leaves of the plants suitable places to deposit their spawn, and without this they are seldom found to breed. Ponds made in this way may be of any convenient size, from a couple of yards upwards to as many acres. The following is the section of a pond thus formed:—



a indicates the surface of the ground at

the edge of the water; *b*, the puddle; *c*, the facing to preserve the puddle from injury; *d*, the water; *e*, the surface of the latter; and *f*, the ordinary bottom. When a small pond of this kind is to be made, and the extent of the surface is determined upon and marked out, it will then be necessary to form a second or outer mark, indicating the space required for the wall or side puddle, and about three feet is the proper space to allow for this; the puddle requiring about two feet, and the facing which requires to be laid upon the puddle ought to be about a foot more, making together three feet. Ponds may be made very ornamental.

PONGA'MIA. (*Pongum*, its Malabar name. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 17-*Diadelphia* 4-*Decandria*. Allied to *Dalbergia*.)

Stove evergreen shrubs and climbers, all but one white-flowered, and from the East Indies. For culture, see *DALBERGIA*.

P. glabra (smooth-leaved). 5. 1699.
— *grandiflora* (large-flowered). 6. 1818.
— *marginata* (bordered). 3. Yellow. May. 1824. Twiner.

— *piscidia* (piscidia-like). 1818.
— *utigino'sa* (marsh). W. Ind. 1824. Twiner.

PONTEDE'RIA. (Named after *J. Pontedera*, professor of botany at Padua. Nat. ord., *Pontederiads* [Pontederiaceæ]. Linn., 6-*Hexandria* 1-*Monogynia*.)

Blue-flowered aquatics. Divisions of the roots; rich, strong, loamy soil, in a tub of water or an aquarium.

HARDY AQUATICS.

P. angustifolia (narrow-leaved). 2. July. N. Amer. 1806.
— *cærulea* (light blue). 2. July. N. Amer. 1830.
— *cordata* (heart-leaved). 2. July. N. Amer. 1759.
— *lanceolata* (spear-head). 2. July. N. Amer. 1815.

STOVE AQUATICS.

P. azurea (sky-blue). 2. July. Jamaica. 1824.
— *cra'ssipes* (thick-leaf-stalked). 2. May. Guiana. 1825.
— *dilatata* (spreading). 2. July. E. Ind. 1806.

PONTIA. A genus of butterflies, of which the following one is most obnoxious to the gardener:—

P. brassica (Large White Cabbage Butterfly). The wings are white; the upper with broad black tips; and the female has two black spots on the middle. The under side of the under wings is light yellow. Breadth, when expanded, two inches. It appears from May to October. The caterpillar is bluish-green, thinly haired, and sprinkled with black dots, having a yellow stripe on the back, and the same on the sides. These cater-

pillars are found, throughout the summer and autumn, on all the cabbage-worts, on horse-radish, radishes, mustard, and similar plants, as well as on water-cresses. The pupæ are yellowish-green, with black dots, with a point on the head, and five on the back. The best way to destroy them is picking off and killing the caterpillars, as well as the pupæ, as far as it is possible; the latter are found attached to adjacent trees, hedges, and walls. But care must be taken not to destroy those pupæ which have a brown appearance; because they are full of the larvæ of ichneumons, and other allied parasites, which are the great scourge of these caterpillars.

P. rapæ (Small Cabbage Butterfly). This butterfly resembles the foregoing, but is one-half smaller; and the black tinge at the points of the upper wings is fainter, and not visible on the outer edge. The time of appearance is the same as of the former. The caterpillar is of a dull green, with fine white minute hairs, a yellow stripe on the back, and yellow spots on the sides, on a pale ground. In some years it is very injurious to the cabbage and turnip plants; it also infests mignonette, which it strips entirely of its leaves. It is very difficult to be discovered, from its colour. The pupa is yellowish or greenish-grey, with three yellow stripes.—*Kollar*.

POPLAR. *Populus*.

POPPY. *Papaver*.

PO'PULUS. Poplar. (From *arbor-populi* of the Romans, or the tree of the public; the Turin poplar much planted in their cities. Nat. ord., *Willowworts* [Salicaceæ]. Linn., 22-*Diœcia* 7-*Octandria*.)

Hardy deciduous trees. Seeds, which should be sown in moist soil, slightly covered, but shaded as soon as the seeds drop from the trees; by cuttings of the ripened shoots; also by layers and suckers; a deep, moist, loamy soil suits them the best; but they do not thrive well either in a very dry place, or in places where there is stagnant water.

P. alba (white. *Abele-tree*). 40. March. Britain.

— *angulata* (angular. *Carolina*). 80. March. Carolina. 1738.

— *balsamifera* (balsamic). 70. April. N. Amer. 1792.

— *foliis variegatis* (variegated-leaved). April.

— *intermedia* (intermediate). April.

— *latifolia* (broad-leaved). 40. April.

— *suaveolens* (sweet-scented). 70. April. Russia. 1825.

— *viminalis* (twiggy). 40. April. Altai. 1826.

— *betulifolia* (birch-leaved. *Black American*). 40. March. N. Amer.

- P. Canadensis* (Canadian). March. Canada.
— canadensis (whitish-heart-leaved). 50. March. N. Amer. 1772.
— canescens (hoary). 40. March. England.
— acerifolia (maple-leaved).
— ægyptiaca (Egyptian). Egypt.
— arembergica (Aremberg). 1835.
— belgica (Belgian). South Europe. 1835.
— hybrida (hybrid). 40. April. Caucasus. 1816.
— nivea (snow-white).
— pendula (drooping-branched).
— fastigiata (pyramidal. Lombardy). 70. March. Italy. 1758.
— femina (female). March. Italy. 1838.
— graeca (Greek. Athenian). 40. March. Archipelago. 1779.
— grandidentata (large-toothed). 70. March. N. Amer. 1772.
— pendula (drooping). 40. March. N. Amer. 1820.
— heterophylla (various-leaved). 70. March. N. Amer. 1765.
— laurifolia (laurel-leaved). April.
— longifolia (long-leaved). April. America. 1843.
— moniliifera (necklace-bearing). 70. May. Canada. 1772.
— Lindleyana (Lindley's waved-leaved). April. Canada. 1772.
— variegata (variegated-leaved). May.
— nigra (black). 30. March. Britain.
— salicifolia (willow-leaved). April. Floetbeck. 1834.
— viridis (green-leaved). April. Britain.
— pseudobalsamifera (bastard-balsamic). April. America. 1843.
— tremula (trembling. Aspen). 50. March. Britain.
— laevigata (smooth). 80. March. N. Amer. 1760.
— pendula (drooping). April.
— supina (lying-down). March. N. Amer. 1824.
— trepida (trembling. American). 30. N. Amer. 1812.
— tristis (sad). April. N. Amer. 1843.
PORA'NA. (From *poros*, to travel; the twining stems extending far and wide. Nat. ord., *Bindweeds* [Convolvulacæ]. Linn., 5-Pentandria 1-Monogynia. Allied to Convolvulus.)

Stove evergreen, East Indian, white-flowered twiners. Seeds in a hotbed, and side, stubby, short shoots in sandy soil, under a bell-glass, in heat; peat and loam. Winter temp., 50° to 55°; summer, 60° to 65°.

- P. paniculata* (panicked). October. 1823.
— volubilis (twining). 50. July. 1820.

PORANTHERA. (From *poros*, a pore, or opening, and *anthera*, an anther, or pollen-bag; anthers opening by pores. Nat. ord., *Spurge-worts* [Euphorbiacæ]. Linn., 5-Pentandria 3-Trigynia.)

Greenhouse evergreen. Cuttings of firm side-shoots in sand, under a bell-glass, set in a close frame, and shaded in May; peat and sandy loam. Winter temp., 40° to 48°.

- P. ericifolia* (heath-leaved). 1. White. July. N. Holland. 1824.

PORLIERA. (Named after P. A. Porlier, a Spaniard. Nat. ord., *Beancapers* [Zy-

gophyllacæ]. Linn., 8-Octandria 1-Monogynia. Allied to *Melanthus*.)

Stove evergreen shrub, with leaves which close before rain; hence called *hygrometrica*. Cuttings of firm shoots in spring, in sand, under a bell-glass, and in a brisk bottom-heat. Winter temp., 50° to 55°; summer, 60° to 80°.

- P. hygrometrica* (hygrometric). 6. Peru. 1820.

PO'RPAX. (From *porpax*, a button; shape of pseudo-bulbs. Nat. ord., *Orchids* [Orchidacæ]. Linn., 20-Gynandria 1-Monandria. Allied to *Ixia*.)

Stove orchid. Divisions in spring, in pots. See *ORCHIDS*.

- P. reticulata* (netted). Purple, red. E. Ind.

PORPHYROCOMA. (From *porphyra*, purple, and *koma*, a head; flower-heads purple. Nat. ord., *Acanthads* [Acanthacæ]. Linn., 14-Didynamia 2-Angiospermia. Allied to *Aphelandra*.)

Stove evergreen shrub. Cuttings of young shoots in sandy soil, in a hotbed; peat and loam. Winter temp., 50° to 60°; summer, 60° to 85°.

- P. lanceolata* (spear-head-leaved). 1. Violet. April. 1845.

PORTLANDIA. (Named after the *Duchess of Portland*. Nat. ord., *Cinchonads* [Cinchonacæ]. Linn., 5-Pentandria 1-Monogynia. Allied to *Rondeletia*.)

Stove evergreen shrubs, from Jamaica. Cuttings of rather firm shoots in sand, under a bell-glass, and in a brisk, sweet bottom-heat; sandy loam, peat, and a little leaf-mould. Winter temp., 45° to 60°; summer, 60° to 90°.

- P. coccinea* (scarlet). 5. Scarlet. 1812.
— grandiflora (large-flowered). 12. White. 1775.

PORTUGAL LAUREL. *Ce'rasus Lusit'nica.*
PORTULACA. Purslane. (From *porto*, to carry, and *lac*, milk; milky juice. Nat. ord., *Purslanes* [Portulacæ]. Linn., 11-Dodecandria 1-Monogynia. Allied to *Talinum*.)

Hardy annuals, by seeds in the open border, at the end of April; tender annuals, by seed in hotbed, in spring, and afterwards flowering them in the greenhouse, as they require a very sheltered, sunny spot to do much good in the open air; tuberous and shrubby greenhouse kinds, by cuttings and division of the roots; rich, sandy loam and peat, the loam being enriched with old leaf-mould or cow-dung.

GREENHOUSE TUBEROUS EVERGREENS.
P. Gilliesii (Gillies'). ♀. Red, pink. Mendoza. 1827.

- grandiflora* (large-flowered). Yellow, purple. June. Chili. 1827.

- Peruviana* (Peruvian). 2. Purple. May. Peru. 1820. Stove herbaceous.

- splendens* (shining). Crimson, purple. May. Chili. 1839. Herbaceous perennial.

- Thellusonii* (Thelluson's). 1. Scarlet. July. South Europe. 1839.

- lutea* (yellow). 1. Yellow. June. 1847.
— splendens (shining). 1. Reddish-purple. June.

GREENHOUSE ANNUALS.

- P. halimoides* (halimoid-like). $\frac{1}{2}$. Yellow. June. Jamaica. 1823.
 — *meridia'na* (noonday). $\frac{1}{2}$. Yellow. May. E. Ind. 1791.
 — *parvifolia* (small-leaved). $\frac{1}{2}$. Yellow. June. Jamaica. 1799.
 — *pilo'sa* (haggy). $\frac{1}{2}$. Pink. June. S. Amer. 1690.
 — *pusilla* (weak). $\frac{1}{2}$. Yellow. June. Trinidad. 1824.
 — *quadri'fida* (four-cleft). $\frac{1}{2}$. Yellow. August. E. Ind. 1773.

HARDY ANNUALS.

- P. folio'sa* (leafy). $\frac{1}{2}$. Yellow. June. Guinea. 1822.
 — *grandiflo'ra lutea* (large yellow-flowered). Yellow. June. Chili. 1827.
 — *Guine'nsis* (Guinea). $\frac{1}{2}$. Yellow. June. Guinea. 1823.
 — *involucra'ta* (involucrated). $\frac{1}{2}$. Pink. June. 1820.
 — *mucrona'ta* (sharp-pointed). $\frac{1}{2}$. Yellow. June. 1822.
 — *olera'cea* (eatable). $\frac{3}{4}$. Yellow. July. Europe. 1582.
 — *sati'va* (cultivated). $1\frac{1}{2}$. Yellow. August. S. Amer. 1652.
 — *au'rea* (golden). 1. Yellow. August. S. Amer. 1652.

POSOQUE'RIA. (*Posoqueri*, the Guianan name of *longiflo'ra*. Nat. ord., *Cinchonads* [Cinchonaceæ]. Linn., 5-Pentandria 1-Monogynia. Allied to *Gardenia*.)

Stove, white-flowered, evergreen shrubs. Cuttings of young shoots in sand, under a bell-glass, and in heat, in April or May; sandy loam, leaf-mould, and a little peat. Winter temp., 48° to 60°; summer, 60° to 85°.

- P. gra'cilis* (slender). 5. Guiana. 1825.
 — *latifolia* (broad-leaved). 5. September. Guiana. 1826.
 — *longiflo'ra* (long-flowered). 5. Guiana. 1822.
 — *versicolor* (changeable-coloured). Pinky-white. September. Cuba. 1839.

POTATO. *Sola'num tubero'sum*.

Soil—A dry, friable, fresh, and moderately rich soil is the best for every variety of the potato.

The black-skinned and rough-red thrive better than any other in moist, strong, cold soils. If manure is absolutely necessary, whatever may be the one employed, it is better spread regularly over the surface previous to digging than put into the holes with the sets, or spread in the trench when they are so planted; but, if possible, avoid manuring. Leaf-mould, or very decayed stable-dung, is the best of all manures; sea-weed is a very beneficial addition to the soil; and so is salt. Coal-ashes and sea-sand are applied with great benefit to retentive soils. The situation must always be open.

Propagation.—It is propagated in general by the tubers, though the shoots arising from thence, and layers of the

stalks, may be employed. New varieties are raised from seed.

Planting in the open ground is best done in October and November, and may thence be continued until the end of March. This last month is the latest in which any considerable plantation should be made. They will succeed if planted in May, or even June; yet it ought always to be kept in mind that the earliest planted, especially in dry soils, produce the finest, healthiest, and most abundant crops.

Sets.—The next point for consideration is the preparation of the sets. Some gardeners recommend the largest potatoes to be planted whole; others, that they be sliced into pieces containing two or three eyes; a third set, to cut the large tubers directly in half; a fourth, the employment of the shoots only, which are thrown out if potatoes are kept in a warm, damp situation; and a fifth, that merely the parings be employed. Cuttings of the stalks, five or six inches in length, or rooted suckers, will be productive if planted, during showery weather, in May or June; and during this last month, or early in July, the potato may be propagated by layers, which are formed by pegging down the young stalks when about twelve inches long, they being covered three inches thick with mould at a joint. For the main crops, moderate-sized whole potatoes are the best.

To obtain early crops where tubers are rapidly formed, large sets must be employed. In these one or two eyes at most should be allowed to remain. If the sets are placed with their leading buds upwards, few and very strong early stems will be produced; but, if the position is reversed, many weak and later shoots will arise, and not only the earliness but the quality of the produce be depreciated. For the earliest crops there are, likewise, several modes of assisting the forward vegetation of the sets. These should be prepared by removing every eye but one or two; and being placed in a layer in a warm room, where air and light can be freely admitted, with a covering of straw, chaff, or sand, they soon emit shoots, which must be strengthened by exposure to the air and light as much as possible, by taking off the cover without injuring them. During cold weather, and at night, it must always be removed:

the leaves soon become green and tolerably hardy. I nearly spring they are planted out, the leaves being left just above the surface, and a covering of litter afforded every night until the danger of frost is passed.

Planting.—Insert them with the dibble, in rows; for the early crops twelve inches apart each way, and for the main ones eighteen inches; the sets six inches beneath the surface. The potato dibble is the best instrument that can be employed, the earth being afterwards raked or struck in with the spade, and the soil not trampled upon, but planted as sufficient is dug for receiving a row; for the looser the soil the less does frost penetrate, and the more readily does superfluous moisture escape.

The compartment may be laid out level and undivided if the soil is light; but if heavy soil is necessarily employed; it is best disposed in beds six or eight feet wide. If the staple of the soil be good throughout, the alleys may be two feet wide, and dug deep, otherwise they must be made broader, and only one spit taken out, the earth removed being employed to raise the beds, which should be in four parallel ridges, and the sets inserted along their summits.

Hoeing.—As soon as the plants are well to be distinguished, they should be perfectly freed from weeds, and of the early crops the earth drawn round each plant, so as to form a cup as a shelter from the cold winds, which are their chief enemy at that season; but the main crops should not be earthed up, for earthing up diminishes the crop one-fourth. Throughout their growth they should be kept perfectly clear of weeds.

It is very injurious to mow off the tops of the plants. The foliage ought to be kept as uninjured as possible, unless, as sometimes occurs on fresh ground, the plants are of gigantic luxuriance, and even then the stems should be only moderately shortened. It is, however, of considerable advantage to remove the fruit-stalks and immature flowers as soon as they appear, unless the stems are very luxuriant. A potato-plant continues to form tubers until the flowers appear, after which it is employed in ripening those already formed.

The very earliest crops will be in production in June, or, perhaps, towards the end of May, and may thence be taken up

as wanted until October, at the close of which month, or during November, they may be entirely dug up and stored. In storing, the best mode is to place them in layers, alternately with dry coal-ashes, earth, or sand, in a shed. The best instrument with which they can be dug up is a three-flat-pronged fork, each row being cleared regularly away.

The tubers should be sorted at the time of taking them up; for, as the largest keep the best, they alone should be stored, whilst the smaller ones are first made use of.

Potatoes should not be stored until perfectly dry, and must also be free from earth, refuse, and wounded tubers.

To raise Varieties.—A variety of the potato is generally considered to continue about fourteen years in perfection, after which period it gradually loses its good qualities, becoming of inferior flavour and unproductive; fresh varieties must, therefore, be occasionally raised from seed. The berries, or apples, of the old stock, having hung in a warm room throughout the winter, the seed must be obtained from them by washing away the pulp during February. The seed is then thoroughly dried and kept until April, when it is sown in drills about a quarter of an inch deep, and six inches apart, in a rich, light soil. The plants are weeded, and earth drawn up to their stems, when an inch in height; and as soon as the height has increased to three inches, they are moved into a similar soil, in rows sixteen inches apart each way. Being finally taken up in the course of October, they must be preserved until the following spring, to be then replanted and treated as for store crops.

The tubers of every seedling should be kept separate, as scarcely two will be of a similar habit and quality, whilst many will be comparatively worthless, and but few of particular excellence. If the seed is obtained from a red potato that flowered in the neighbourhood of a white-tubered variety, the seedlings, in all probability, will in part resemble both their parents; but seldom or never does a seedling resemble exactly the original stock. At all events, only such should be preserved as are recommended by their superior earliness, size, flavour, or fertility.

The early varieties, if planted on little

heaps of earth, with a stake in the middle, and when the plants are about four inches high, being secured to the stakes with shreds and nails, and the earth washed away from the bases of the stems by means of a strong current of water, so that the fibrous roots only enter the soil, will blossom and perfect seed.

Forcing.—The season of forcing is from the close of December to the middle of February, in a hotbed, and at the close of this last month on a warm border, with the temporary shelter of a frame. The hotbed is only required to produce a moderate heat. The earth should be six inches deep, and the sets planted in rows six or eight inches apart, as the tubers are not required to be large. The temperature ought never to sink below 65°, nor rise above 80°.

The rank steam arising from fermenting dung is undoubtedly injurious to the roots of potatoes; and to obviate this they may be planted in narrow beds, and the dung applied in trenches on each side; or all the earth from an old cucumber or other hotbed being removed, and an inch in depth of fresh being added, put on the sets, and cover them with four inches of mould. At the end of five days the sides of the old dung may be cut away in an inward slanting direction, about fifteen inches from the perpendicular, and strong linings of hot dung applied.

If the tubers are desired to be brought to maturity as speedily as possible, instead of being planted in the earth of the bed, each set should be placed in a pot about six inches in diameter, though the produce in pots is smaller. But young potatoes may be obtained in the winter, by the following plan, without forcing:—Plant some late kinds, unsprouted, in a dry, rich border, in July, and again in August, in rows two feet apart. They will produce new potatoes in October, and in succession until April, if covered with leaves or straw to exclude frost. If old potatoes are placed in dry earth, in a shed during August, they will emit young tubers in December.

Preparation of Sets for Forcing.—They should be of the early varieties. To assist their forward vegetation, plant a single potato in each of the pots intended for forcing during January. Then place in the ground, and protect with litter from the frost. This renders them very

excitable by heat; and, consequently, when plunged in a hotbed, they vegetate rapidly and generate tubers. The seed potatoes are equally assisted, and with less trouble, if placed in a cellar just in contact with each other; and as soon as the germs are four inches long, they are removed to the hotbed.

Management.—More than one stem should never be allowed, otherwise the tubers are small, and not more numerous.

Water must be given whenever the soil appears dry, and in quantity proportionate to the temperature of the air. Linings must be applied as the temperature declines, and air admitted as freely as the temperature of the atmosphere will allow. Coverings must be afforded with the same regard to temperature.

From six to seven weeks usually elapse between the time of planting and the fitness of the tubers for use.

Potato Murrain.—By the above name was distinguished a moist gangrene which first attacked, very generally, the crop of England late in the summer of 1845. July and August were unusually wet and cold, and early in August there were sharp morning frosts. Immediately after, the stems began to decay; but the weather continuing wet, instead of their decay being dry, and attended with the usual phenomena of their reduction to mere woody fibre, the putrefaction was moist, and the smell attendant upon it precisely that evolved during the decay of dead potato haulm partly under water. The stem decayed, whilst the fibres connecting the tubers with them were fresh and juicy; the putrefaction spread along these; the diseased sap, being absorbed by their still immature and unusually juicy tubers, imparted to them the gangrene; the infection first being apparent at the end nearest the connecting fibre, spreading gradually throughout the bark of the tuber, rendering it brown, like a decayed apple, and, lastly, causing the decay of its interior portion. Previously to the final decay, the increased specific gravity of the potato was remarkable, amounting to one-third more than that of a healthy tuber—an increase caused by its greater amount of water. When boiled the potato became black; but when submitted to a dry heat of about 200°, it rapidly lost moisture, and the progress of the ulceration was retarded, if not entirely stopped.

The disease seems to be the result of an excessive degree of wet and cold, at that period of closing growth when all bulbs and tubers require an increased degree of dryness and warmth. If the hyacinth, or tulip, or dahlia is submitted to similar unpropitious contingencies, its bulbs or tubers similarly decay. It is not a new disease, for to a less extent it has been noticed before.

The best rules to obtain and preserve sound potatoes, and a good crop, are—1. Grow none but those which ripen by August. 2. Plant whole, middle-sized potatoes. 3. Plant on moderately light soil, manured some months previously. 4. Apply no manure at the time of planting. 5. Plant in November in light, dry soils, but not until February in wet soils. 6. Preserve your seed potatoes between layers of earth until required. 7. Plant as you dig; that is, dig enough for one row, and then plant it with the dibble, so as to avoid trampling on the ground. 8. Let the tops of the sets be six inches below the surface. 9. Do not earth up the stems. 10. Do not cut down the stems. 11. Take up the crop as soon as the leaves begin to look yellow in July or early August. 12. Store in a dry shed between layers of earth, sand, or coal-ashes.

POTATO, or UNDER-GROUND ONION. (*Allium aggregatum*.) Produces a cluster of bulbs or offsets, in number from two to twelve, and even more, uniformly beneath the surface of the soil. From being first introduced to public notice in Scotland by Captain Burns, of Edinburgh, it is there also known as the *Burn Onion*.

Varieties.—There evidently appear to be two varieties of this vegetable, one of which bears bulbs on the summit of its stems, like the Tree Onion, and the other never throwing up flower-stems at all. One variety is much larger than the other, and this vegetates again as soon as ripe.

Both varieties are best propagated by offsets of the root of moderate size, for if those are employed which the one variety produces on the summit of its stems, they seldom do more than increase in size the first year, but are prolific the next; this also occurs if very small offsets of the root are employed.

Planting.—They may be planted during October or November, or as early in the spring as the season will allow, but not later than April. In the west of Eng-

land, assisted by their genial climate, they plant on the shortest, and take up on the longest day. They are either to be inserted in drills, or by a blunt dibble, eight inches apart each way, not buried entirely, but the top of the offset just level with the surface. Mr. Maher, gardener at Arundel Castle, merely places the sets on the surface, covering them with leaf-mould, rotten dung, or other light compost. The beds they are grown in are better, not more than four feet wide, for the convenience of cultivation.

The practice of earthing over them, when the stems have grown up, is unnatural; and by so doing the bulbs are blanched, and prevented ripening perfectly, on which their keeping so much depends. So far from following this plan, Mr. Wedgewood, of Betley, recommends the earth always to be cleared away down to the ring from whence the fibres spring, as soon as the leaves have attained their full size, and begin to be brown at the top, so that a kind of basin is formed round the bulb. As soon as they vegetate, they intimate the number of offsets that will be produced by showing a shoot for each.

They attain their full growth towards the end of July, and become completely ripe early in September; for immediate use, they may be taken up as they ripen, but for keeping, a little before they attain perfect maturity.

POTENTILLA. Cinquefoil. (From *potens*, powerful; supposed medicinal quality. Nat. ord., *Roseworts* [Rosaceæ]. Linn., 12-*Icosandria* 3-*Trigynia*.)

Hardy herbaceous perennials. *Candicans* and *lineariloba* require protection in the winter; seeds and division of the plant in spring; shrubs, by cuttings of ripe wood in the autumn, or by cuttings in summer, under a hand-light; good, deep, sandy loam. All yellow-flowered, except where otherwise mentioned.

- P. adscendens* (ascending). 1. June. Hungary. 1806.
- *agrimonioides* (agrimony-like). ½. July. Caucasus. 1817.
- *alba* (white). ½. White. May. Wales.
- *alpestris* (mountain). ½. Orange. July. Britain.
- *ambigua* (doubtful. Three-toothed Himalayan). ½. Yellow. June. Himalaya. 1851.
- *angustifolia* (narrow-leaved). ½. June. Siberia. 1824.
- *anserina* (goose-tansy). ½. July. Britain.
- *apennina* (Apennine). ½. White. May. Apennines. 1821.
- *argentea* (silvery-leaved). 1. June. Britain.
- *astracantha* (Astracan). 1. July. Siberia. 1787.
- *atro-sanguinea* (dark-bloody). 1½. Purple. July. Nepaul. 1822.
- *bicolor* (two-coloured). 1. Yellow, red. March. Nepaul. 1843.

- P. biflora* (two-flowered). ½. June. Siberia. 1820.
 — *bifurca* (forked-leaved). ½. June. Siberia. 1773.
 — *subsericea* (rather-silky). ½. June. Astracan. 1827.
 — *Bocconia* (Boccon's). ½. White. July. Apennines. 1823.
 — *Canadensis* (Canadian). 1. June. N. Amer. 1806.
 — *canadensis* (whitish-leaved). ½. May. Mexico. 1820.
 — *caulescens* (stemmed). 1. White. July. Austria. 1759.
 — *chrysantha* (golden-flowered). 1. Golden. June. Siberia. 1827.
 — *Clusia* (Clusius's). ½. White, yellow. June. Austria. 1806.
 — *collina* (hill). 1. June. South Europe. 1816.
 — *conferta* (crowded-flowered). ½. June. Altai. 1831.
 — *crocea* (saffron). 1. Copper. August. Switzerland. 1816.
 — *dealbata* (whiten d). 1. July. Altai.
 — *desertorum* (desert). 1. June. Altai. 1830.
 — *diffusa* (spreading). 1. July. 1817.
 — *effusa* (loose-flowered). 1. August. N. Amer. 1826.
 — *Egedii* (Eged's). ½. May. Denmark. 1820.
 — *filipendula* (dropwort-like). 1. June. Dahuria. 1823.
 — *flagellaris* (rod). ½. June. Siberia. 1820.
 — *formosa* (beautiful). 1½. Purple. June. Nepaul. 1822.
 — *fragaria* (strawberry). ½. White. May. Britain.
 — *fragifloris* (strawberry-formed). 1. June. South Europe. 1809.
 — *fruticosa* (shrubby). 3. July. England.
 — *Dahurica* (Dahurian). 2. August. Dahuria. 1824.
 — *tenuiloba* (narrow-lobed). 1½. August. N. Amer. 1811.
 — *Gariepinensis* (Gariep). White. June. Cape of Good Hope. 1837.
 — *glandulosa* (glanded). 1. August. California. 1830.
 — *incisa* (cut-leaved). 2. July. California. 1835.
 — *gracilis* (slender). 1. July. N. Amer. 1826.
 — *grandiflora* (large-flowered). 1. June. Siberia. 1840.
 — *Guntheri* (Günther's). 1. June. Europe. 1818.
 — *Hippiana* (Hippian's). 1½. July. N. Amer. 1826.
 — *hirsuta* (hairy). 1. June. N. Amer. 1820.
 — *hybrida* (hybrid). ½. White. June. Germany. 1820.
 — *insignis* (showy). 4. July. Nepaul. 1840.
 — *lineariloba* (narrow-lobed). ¾. July. Mexico. 1824.
 — *Loddigesii* (Loddige's). 1. June. Siberia.
 — *macrantha* (large-flowered). ½. May. Siberia. 1820.
 — *Missouriensis* (Missouri). 1. June. N. Amer. 1827.
 — *mollissima* (softest-leaved). 1½. July. Europe. 1832.
 — *Montpelienensis* (Montpelier). ½. April. France. 1680.
 — *multifida* (many-cleft-leaved). ½. July. Siberia. 1759.
 — *angustifolia* (narrow-leaved). ½. June. Siberia.
 — *nitida* (shining). ½. White, red. June. Switzerland. 1816.
 — *nivea* (snowy-leaved). ½. July. Siberia. 1816.
 — *macrophylla* (large-leaved). ¾. June. N. Amer. 1827.
 — *patula* (spreading). ½. June. Hungary. 1818.
 — *pectinata* (comb-leaved). 1½. July. N. Amer. 1826.
 — *pedata* (doubly-lobed). 1. June. Europe. 1819.
 — *Pennsylvanica* (Pennsylvanian). 1. July. N. Amer. 1725.
 — *pimpinelloides* (burnet-like). ½. May. Levant. 1768.

- P. pulcherrima* (very fair). ½. May. N. Amer. 1837.
 — *recta* (upright). 1. June. South Europe. 1648.
 — *repens* (creeping). ½. May. Britain.
 — *floer-pelno* (double-flowered). ½. July. Britain.
 — *variegata* (variegated-leaved). ½. July. Britain.
 — *Richardsonii* (Richardson's). 1. July. N. Amer. 1826.
 — *rupestris* (rock). 1. White. June. England.
 — *Ruthenica* (Russian). 1½. July. Siberia. 1799.
 — *sericea* (silky-leaved). ½. July. Siberia. 1780.
 — *Sieversiana* (Siever's). June. Nepaul. 1822.
 — *speciosa* (showy). 1. June. Crete. 1821.
 — *stipularis* (stipuled). 1. July. Siberia. 1727.
 — *Thomasii* (Thomas's). ½. June. Italy. 1822.
 — *tridentata* (three-toothed-leaved). ½. White. June. Scotland.
 — *umbrosa* (shady). ½. White. May. Tauria. 1818.
 — *uniflora* (one-flowered). ¾. May. Dahuria. 1819.
 — *verna* (spring). ½. June. Britain.
 — *verticillaris* (whorled-leaved). ½. June. Siberia. 1818.
 — *villosa* (shaggy). ½. June. N. Amer. 1820.
 — *viscosa* (clammy). 1. July. Dahuria. 1797.

POT-HERB MOTH. *Mamestra*.

POT-HERBS. See HERBARY.

POTTHOS. (The Cingalese name for one species. Nat. ord., *Orontias* [Orontiaceæ]. Linn., 4-Tetrandria 1-Monogynia. Allied to Anthurium.)

The following are stove epiphytes; but there are many more, and some evergreen trailers, not worth notice. Dividing the roots in spring; fibry peat, fibry loam, rotten wood, and charcoal. Winter temp., 55° to 60°; summer, 60° to 90°.

- P. angustata* (narrow). ½. May. Trinidad. 1823.
 — *crassineris* (thick-nerved). 2½. S. Amer. 1796.
 — *macrophylla* (large-leaved). 3. May. W. Ind. 1794.

- *rubrinervis* (red-nerved). 2. S. Amer. 1820.

POT-MARIGOLD. *Calendula officinalis*.

POTTING. In performing this operation the *Pots* are the first consideration, and for information relative to these, see FLOWER-POTS.

Time of Potting.—This, when necessary, should generally be done after pruning, and when fresh growth has taken place. The reason for this is, that it is advisable never to give more checks to a plant at once than cannot be avoided. The cutting down is a check, the repotting or shifting is another. Therefore, in both cases, we apply an extra stimulus for a short time immediately after, by keeping the plants closer and warmer.

State of the Soil.—It should neither be dry nor wet. If very dry, it will not pack so well in the pot; the water, if it passes freely at all, will find chinks and crannies for itself, and it will be long before the general mass becomes sufficiently moist to support a healthy vegetation. On the other hand, if wet soil is used, it is apt to pack too close; frequent waterings are

apt to puddle it; the very closeness, even when the drainage is all right, prevents the air from penetrating. To know the proper dryness, take a handful; if by tightly squeezing it just holds together slightly, it will do; if it forms a compact mass, so that it might be laid on the potting-board without any risk of tumbling to pieces, it is too wet. It is not necessary that the whole of the material should be in a uniform state of moisture; for instance, we want some rough stuff to place over the drainage, that may be drier. The soil is rather fine; and to improve its mechanical texture we insert little nodules of fibry loam or peat, little or big, in proportion to the size of the pot, and the smallness and largeness of the shift given. These nodules, if not too numerous, may be *drier*. So in the case of a manure, which we may wish to act both as a mechanical agent, and to give out its nourishment not at *once*, but for a long period. It should be old; but it should be *hard* and *dried*. When rapid action from manure is required, it should be finely divided, and regularly mixed with the soil, or used largely as a mulching or top-dressing.

The Soil should be rough and open.—Exceptions there are, such as a covering for small seeds, which must be fine; in fact, if just pressed into the appropriate soil, a dusting of silver-sand scattered over, and then a square of glass put over the pot, it will answer better than the finest-sifted soil. We would not use a sieve at all, unless a very fine one to get rid of the mere dusty portion; and this should always be done before adding sand as a lightening agent. The rule to follow, for general purposes, is to use rough and lumpy, fibry soil, in opposition to that which is fine and sifted; but let that roughness consist in numbers of small rather than a few of larger pieces, and when the latter are used, let them be in proportion to the size of the pot, and the size of the shift given. For instance, for a 4-inch pot, the largest pieces may range from the size of peas to horse-beans; for an 8-inch pot, the largest pieces may be like walnuts, but not many of that size; and for a 16-inch pot, a few pieces may be as large as eggs, with every other size downwards, and well packed with the finer soil from which the mere dust has been extracted.

Securing and Preparing suitable Soil.—

Heath-soil, so necessary for hair-like rooted plants, can only be procured from upland commons where the heath naturally grows. *Loam* of almost every quality can be procured by taking the surface turf from pasture and the sides of roads, and building it in narrow ridges when dry, and using it after being so built up for six or twelve months. Failing these sources, for all plants not requiring peat earth, suitable soil may be obtained from the sides of highways, and by skimming off the flaky material from the tops of ridges that have been trenched up for some time in the kitchen-garden. In using the latter, however, you must, in general, be content with small shifts, as you will not be able to get the soil rough enough for large ones. The plants, notwithstanding, will thrive beautifully, and size for size will often yield more bloom than if you had used large shifts and larger pots. If the latter is your wish, you may use pieces of charcoal, or, what will answer extremely well, get a few fibry sods taken off quite thin, dry them over a furnace, or, what is better, char the grassy sides by putting them on an old spade or other iron, and then place them over a fire; allow the sods to be exposed for a few days to sweeten; and then, if broken into small pieces, they will not only be useful for placing over the drainage, but also for mixing with *any*, but chiefly *fine* soil to keep it open. Where rough soil is wanted for large shifts, it is best to pile the turf, when dry, in narrow stacks, through which the air may circulate, and yet the wet be excluded. In using such a heap, after the time specified, there is little occasion to turn it frequently afterwards, which would be necessary in the case of other fresh soil not so exposed; for we must not forget that every turning we give, while it renders the soil more aerated and sweet, renders it also more fine and *dense*, from the decomposition of its fibre. *Charcoal*, owing to its lightness, not to speak of its chemical properties, is the best assistant for rendering the soil porous; and enough of this may be got from every garden by charring the rubbish. Failing that, however, broken brick, broken pots, and lime-rubbish may be used with advantage, if there is nothing in the peculiar plant to render one or all unsuitable.

Draining.—A plant badly drained will never show fine cultivation. Where worms

are likely to intrude, the convex side of the potsherd should be placed over the hole; but for amateurs, nothing is better than small caps of tin or zinc to cover over the hole completely; and in either case, plenty of drainage placed over them, the materials being smaller as it ascends. For anything requiring nicety, there ought to be at least one-inch drainage in a five-inch pot, and so in proportion. The best covering for the drainage is a sprinkling of green moss, to separate the drainage from the soil; over that some of the rougher materials should be placed, and then some of the finer, on which the base of the ball should rest.

Potting or Shifting.—The pots should be new or thoroughly clean. No man deserves to have a nice plant who would place it in a dirty pot, and rarely will he be rewarded with one. When he attempts to shift again, it serves him right to find that roots and soil alike are so sticking to the sides of the pot, that he must break the pot, or lacerate the roots. Before commencing operations, see that the ball of the plant is *moist* from the centre to the circumference. If not, you can never moisten it afterwards without labour, which may as well be spared. 2. If you wish to rattle your plants *on* until a certain period, upon the successive shift system, never allow the roots to *mat* round the sides of the pot; but reshift as soon as they get there. 3. If the roots should be a little matted, gently disentangle them, even though in doing so you get rid of a good quantity of the old soil, and spread these roots out into layers, packing them as you proceed with soil of various degrees of fineness. 4. The soil in general should be as high in temperature, or nearly so, as the plant enjoyed previously. Cold soil has injured many a fine plant. We have said nothing of cutting roots, because that chiefly applies to particular times and instances. Generally, when after a period of rest, fresh growth is to be induced.

Immediately-after-treatment. — Whatever system of potting has been adopted, a greater excitement to growth than usual should be given. If well watered previously to potting, and a largish shift given, little water will be wanted at the root for a time; but that should be several degrees warmer than usual; and frequent syringings in bright weather should be imparted, accompanied with shading,

if necessary. If a small shift was given, water will be wanted more freely at the root; and here, as well as in the other case, a higher temperature should for a time be maintained, until fresh growth has freely commenced, when air and exposure may be more freely given. See ONE-SHIFT SYSTEM.

POTTING-OFF is the term applied to moving into pots, singly, seedlings or cuttings from where they have been grown numerously together.

POTTLE. See BASKET.

POUPA'RTIA. (Called *Bois de Poupard*, in the Isle of Bourbon. Nat. ord., *Terebinths* [Anacardiaceæ]. Linn., 10-*Decandria* 4-*Pentagynia*. Allied to *Spondias*.)

Stove evergreen trees. Cuttings of ripe shoots in sand, under a bell-glass; peat and loam. Winter temp., 55° to 60°; summer, 60° to 85°.

P. Borbo'nica (Bourbon). 40. Purple. Bourbon. 1825. — *du'lois* (sweet. *Otaheite-apple*). 30. Yellowish. Society Islands. 1793. — *mangifera* (mango-bearing). 30. White. E. Ind. 1820.

PRA'TIA. (Named after *M. Prat*, a French officer. Nat. ord., *Lobelids* [Lobeliaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*.)

Greenhouse herbaceous perennials. Seeds in a slight hotbed, in spring; dividing the plants; cuttings of the young shoots in sandy soil, any time, but best in autumn and spring; sandy loam, and a little peat or leaf-mould; require a greenhouse or cold pit in winter. *Lo'belia Begonia-folia* belongs to this genus.

P. corymbo'sa (corymbed). White. June. Cape of Good Hope. 1824. Trailer. — *erecta* (upright). 1. Blue. June. N. Holland. 1819.

PREPU'SA. (From *prepousa*, comely; the beauty of the flowers. Nat. ord., *Gentianworts* [Gentianaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Leianthus*.)

Stove herbaceous perennials. Seeds in a hotbed, in spring; division of the plant at the same time. Winter temp., 48° to 55°; summer, 60° to 80°.

P. Hookeria'na (Hooker's). 1. White, crimson. March. Brazil. 1839.

PRESTO'NIA. (Named after *C. Preston*, M.D. Nat. ord., *Dogbanes* [Apocynaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Rynchospermum*.)

Stove evergreen, white-flowered twiners, from Brazil. Cuttings of half-ripened, stubby side-shoots in sand, under a bell-glass, in heat; sandy loam, and a little fibry peat or dried leaf-mould. Winter temp., 48° to 58°; summer, 60° to 85°.

P. glabra'ta (smoothed). 8. July. 1823. — *tomentosa* (downy). 8. July. 1820.

PRICKLY CEDAR. *Cyatho'des oxyce'drus*.

PRICKING-OUT is transplanting seedlings from their seed-bed more thinly,

that they may acquire more fibrous roots and strength previously to their being finally planted out.

PRICKWOOD, or TIMBER. *Euo'nymus Europæus* and *Co'rnus sanguinea*.

PRIESTLEYA. (Named after Dr. Priestley. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 17-*Diadelphia* 4-*Decandria*. Allied to *Liparia*.)

Greenhouse, yellow-flowered, evergreen shrubs, from New Holland, all about three feet high. Cuttings of half-ripened short shoots in sand, under a bell-glass; sandy loam and fibry peat, and thoroughly well-drained, to assist which charcoal and pieces of broken brick or sand-stone may be mixed with the compost. Winter temp., 40° to 45°. Such species as *vestita* should be tried against a wall.

P. axillaris (axillary-flowered). June. 1822.

— *capitata* (headed-flowered). July. 1812.

— *elliptica* (oval-leaved). 1825.

— *ericefolia* (heath-leaved). June. 1812.

— *graminifolia* (grass-leaved). June. 1800.

— *hirsuta* (hairy-stemmed). August. 1792.

— *laevigata* (smooth-leaved). July. 1820.

— *myrtifolia* (myrtle-leaved). June. 1823.

— *sericea* (silky-leaved). June. 1794.

— *teres* (round-stemmed). June. 1816.

— *tomentosa* (downy). July. 1812.

— *umbellifera* (umbelliferous). July. 1826.

— *vestita* (clothed). May. 1800.

— *villosa* (woolly). June. 1774.

PRI'MULA. Primrose. (From *primus* the first; early flowering. Nat. ord., *Primulaceæ*. Linn., 5-*Pentandria* 1-*Monogynia*.)

Seeds in April, in light, sandy border; divisions of the plant in March and April, or when the plants have done flowering, or in the autumn. *Pra'nitens*, or *Sine'nsis*, and its varieties, generally by seed in a slight hotbed, in spring or the beginning of autumn, according as the plants are wanted to bloom early in winter or the following spring. The Chinese double varieties (so useful for nosegays in winter), by cuttings after flowering, in April or May, and by re-potting the small plants of last year; sandy loam and peat, enriched with a little decayed cow-dung, and kept open with small nodules of charcoal. These should seldom be below 40° in winter, and the nearer they range from 45° at night, and 50° and 55° during the day, the better they will bloom.

GREENHOUSE HERBACEOUS.

P. mollis (soft-leaved). Scarlet. April. Bootan.

— *pra'nitens* (very glossy. Chinese). $\frac{3}{4}$. Pink. May. China. 1820.

— *fimbriata alba* (fringed-white). $\frac{3}{4}$. White. June. 1833.

— *fimbriata rosea* (fringed-rosy). 1. Rose. June. 1833.

— *fl're-alba* (white-flowered). $\frac{3}{4}$. White. May. China.

— *ple'na-alba* (double-white). White. March. China.

— *ple'na-rosea* (double-rosy). Rose. March. China.

— *verticillata* (whorled). Yellow. March. Egypt. 1826.

HARDY HERBACEOUS.

P. Alho'ni (Allioni's). $\frac{3}{4}$. Red. April. France. 1818.

— *Altaica* (Altaian). $\frac{3}{4}$. Red. April. Altai. 1819.

P. am'ena (pleasing). $\frac{3}{4}$. Purple. April. Caucasus. 1823.

— *auricula* (auricle). $\frac{3}{4}$. Yellow. April. Switzerland. 1596.

— *calycantha* (coloured-calyxed). $\frac{3}{4}$. Yellow. April. Switzerland. 1596.

— *hortensis* (garden). $\frac{3}{4}$. Variegated. April. Europe. 1696.

— *integerrima* (most-entire). $\frac{3}{4}$. Variegated. April. Switzerland. 1596.

— *lutea* (yellow). $\frac{3}{4}$. Yellow. May. Switzerland. 1596.

— *lutea plena* (double-yellow). $\frac{3}{4}$. Yellow. April. Gardens.

— *Balbisii* (Balbis's). $\frac{3}{4}$. Yellow. April. South Europe. 1823.

— *brevistyla* (short-styled). $\frac{3}{4}$. Yellow. June. France. 1818.

— *versicolor* (party-coloured). $\frac{3}{4}$. Yellow, red. June. France. 1818.

— *capitata* (round-headed-mealy). $\frac{3}{4}$. Purple. October. Himalaya. 1850.

— *Carniolica* (Carniolan). $\frac{3}{4}$. Purple. March. Carniola. 1825.

— *ciliata* (hair-fringed. Swiss). $\frac{3}{4}$. Red. April. Switzerland. 1700.

— *cortusoides* (cortusa-like). 1. Red. June. Siberia. 1794.

— *Davurica* (Davurian). $\frac{3}{4}$. Red. May. Siberia. 1806.

— *de'cora* (comely). $\frac{3}{4}$. Pink. April. South Europe. 1800.

— *denticulata* (toothed-leaved). $\frac{3}{4}$. Purple. May. April. Siberia. 1806.

— *dentiflora* (toothed-flowered). 1. Red. June. April. Britain.

— *calycantha* (coloured-calyxed). $\frac{3}{4}$. Variegated. April. Britain.

— *fl're-plena* (double-flowered). $\frac{3}{4}$. Brown, crimson. April. Britain.

— *polyantha* (many-flowered). $\frac{3}{4}$. Variegated. April. Britain.

— *farinosa* (mealy). $\frac{3}{4}$. Red. June. Britain.

— *Finnmarkica* (Finmark). $\frac{3}{4}$. Violet. May. Norway. 1798.

— *gigantea* (giant). $\frac{3}{4}$. Red. June. Siberia. 1820.

— *glaucescens* (milky-green). Pink. June. Switzerland. 1826.

— *glutinosus* (clammy). $\frac{3}{4}$. Red. June. South Europe. 1824.

— *Helvetica* (Helvetian). 1. Red. June. Switzerland.

— *alba* (white). $\frac{3}{4}$. White. May.

— *inflata* (inflated). $\frac{3}{4}$. Yellow. May. Hungary. 1825.

— *integrifolia* (entire-leaved). $\frac{3}{4}$. Pink. June. Pyrenees. 1792.

— *involuturata* (ruffed). $\frac{3}{4}$. White. April. North India. 1845.

— *latifolia* (broad-leaved). $\frac{3}{4}$. Red. April. Pyrenees. 1820.

— *longiflora* (long-flowered). $\frac{3}{4}$. Red. June. Europe. 1825.

— *longifolia* (long-leaved). $\frac{3}{4}$. Red. April. Levant. 1790.

— *longiscapa* (long-flower-stalked). Lilac. April. Altai. 1837.

— *marginalia* (silver-edged). $\frac{3}{4}$. Pink. April. Switzerland. 1777.

— *ma'ior* (larger). Pink. April.

— *microcalyx* (small-calyxed). Red. May. Altai. 1838.

— *minima* (least). $\frac{3}{4}$. Red. April. South Europe. 1819.

— *Mistassinica* (Lake Mistassins). $\frac{3}{4}$. Red. June. N. Amer. 1818.

— *Munro'i* (Capt. Munro's). $\frac{3}{4}$. White. May. North India. 1845.

— *nivalis* (snowy). $\frac{3}{4}$. Purple. April. Dahuria. 1790.

P. nivea (snow-white). ½. White. April. Siberia.
Palinuri (Palinurus). ½. Yellow. April. Naples. 1816.

— *Pallasii* (Pallas's). ½. Yellow. June. Altai. 1823.

— *Perriniana* (Perrein's). 4. Yellow. June. Spain.

— *Piedmontana* (Piedmont). ½. Pink. May. Piedmont. 1826.

— *pubescent* (downy). ½. Red. April. South Europe. 1800.

— *pusilla* (weak). ½. Purple. June. N. Amer. 1822.

— *Scotica* (Scotch). ½. Red. June. Scotland.

— *Sibirica* (Siberian). ½. Red. May. Siberia. 1813.

— *integerrima* (very-entire). ½. Rose, lilac. April. Altai. 1833. Half-hardy.

— *Sikkimensis* (Sikkim). 1. Yellow. May. Himalaya. 1850.

— *Simsii* (Sims's). ½. White. April. Switzerland. 1768.

— *stricta* (erect). ½. Pink. April. Denmark. 1822.

— *Stuartii* (Stuart's). ½. Yellow. June. Nepal. 1845.

— *suaevolens* (sweet-scented). ½. Yellow. April. Italy. 1824.

— *truncata* (abrupt-ended-leaved). ½. Purple. April. South Europe.

— *vemusta* (neat). ½. Purple. April. Hungary. 1833.

— *veris* (spring. Cowslip). ½. Yellow. May. Britain.

— *rubra* (red). ½. Red. May. Britain.

— *villosa* (shaggy-leaved). ½. Purple. April. Switzerland. 1763.

— *viscosa* (clammy). ½. Purple. April. Piedmont. 1792.

— *vulgaris* (common. Primrose). ½. Yellow. June. Britain.

— *alba* (single-white). ½. White. April. Britain.

— *plena alba* (double-white). ½. White. April. Britain.

— *plena atropurpurea* (double-dark-purple). ½. Purple. April. Britain.

— *plena carnea* (double-flesh-coloured). ½. Flesh. April. Britain.

— *plena cuprea* (double-copper). ½. Copper. April. Britain.

— *plena rubra* (double-red). ½. Red. April. Britain.

— *plena sulphurea* (double-brimstone). ½. Pale yellow. April. Britain.

— *plena violacea* (double-violet). ½. Violet. April. Britain.

— *polyantha* (many-flowered. *Polyanthus*).

PRI'NOS. Winter Berry. (The ancient name of the Holly, which some of the species resemble. Nat. ord., *Hollyworts* [Aquifoliaceæ]. Linn., 6-*Hexandria* 1-*Monogynia*.)

All hardy and deciduous, except *luoidus* (which is a hardy evergreen), and *montanus*, which is a stove evergreen. All white-flowered. Hardy kinds, seeds and layers; stove kinds, by cuttings of firm shoots in sand, under a bell-glass; sandy loam and peat.

P. ambiguus (ambiguous). 4. Carolina. 1812.

— *atomarius* (atomed). 2. July. N. Amer. 1822.

— *coriaceus* (leather-leaved). 3. June. N. Amer. 1820.

— *deciduous* (deciduous). 4. June. Virginia. 1736.

— *dubius* (doubtful). 12. July. N. Amer. 1736.

— *glaber* (smooth). 1½. July. Canada. 1759.

— *lævigatus* (smooth). 4. June. N. Amer. 1812.

— *lanccolata* (spear-head-leaved). 4. July. Carolina. 1811.

— *luoidus* (shining). 3. June. N. Amer. 1778.

P. montanus (mountain). 3. W. Ind. 1820.
 — *verticillatus* (whorled). 6. N. Amer. 1736

PRIVET. *Liquistrum*.

PRO'CCKIA. (Probably a commemorative name. Nat. ord., *Bixads* [Flacourtiaceæ]. Linn., 13-*Polyandria* 1-*Monogynia*.)

Stove, yellow-flowered, evergreen shrubs. Cuttings of half-ripened shoots in sand, under a glass, in heat; sandy, fibry loam, and a little fibry peat. Winter temp., 55° to 60°; summer, 60° to 85°.

P. Cru'cis (St. Cruz). 4. July. W. Ind. 1822.

— *serrata* (saw-leaved). 6. July. Montserrat. 1823.

— *theaformis* (tea-shaped). 6. July. Bourbon. 1820.

PROLIFEROUS. (See DOUBLE FLOWER.)

The term is also applied to plants producing many suckers.

PROMENÆ'A. (Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-*Gynandria* 1-*Monandria*. Allied to *Maxillaria*.)

Stove orchids from Brazil, cultivated in baskets. See ORCHIDS.

P. citrina (citron-flowered). Yellow. May. 1838.

— *lentiginosa* (freckled). Green, purple. July. 1843.

— *Rollissonii* (Rollisson's). Pale yellow. August. 1843.

— *Stapeloides* (Stapelia-like). Green, yellow. June. 1828.

— *nigra* (black). Green, black. June. 1835.

— *rubra* (red). Green, red. June. 1839.

— *wanthi'na* (yellow-flowered). Yellow. August. 1843.

PRON'A'YA. (Named after *M. Pronay*, a French naturalist. Nat. ord., *Pittosporads* [Pittosporaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Sollya*.)

Greenhouse evergreen twiner. Cuttings of young shoots in sand, under a glass; sandy loam and peat. Winter temp., 40° to 48°.

P. elegans (elegant). 4. Blue. August. N. Holland. 1837.

PROPS are the supports required by plants to sustain them in a desired position. They must vary in height and strength accordantly with the plant to which they are applied, and should always be as slight as is consistent with efficiency. Nothing looks worse than a disproportioned prop; indeed, it should be concealed as much as possible. The props for peas should be of the branches of the hazel, or of frames and strings, which we prefer; for runner kidney beans, rods of ash. For flowers, stout iron wire, painted brown or dark green, is to be preferred. Whenever wooden props are used, the end thrust into the ground should be previously charred; if this precaution be taken, and when, no longer required, they are stored in a dry shed, they will last for several seasons. Props should be placed on the south sides of the plants, as they incline in that direction, as being most light.

The fewest possible number of props is one of the evidences of good cultivation and good taste.

PROSO'PIS. (A name of a plant employed by Dioscorides. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 10-*Decandria* 1-*Monogynia*. Allied to *Desmanthus*.)

Stove evergreen trees. Cuttings of young shoots, when a little firm, taken off close to the older stems, in sand, under a bell-glass, and in a little bottom-heat; sandy loam, and sandy, fibry peat. Winter temp., 45° to 55°, and rather dry; summer, 60° to 85°, and plenty of moisture at root and top. *Siliquastrum* stood several years against a wall in the Horticultural Society's Gardens.

- P. Cumanensis* (Cumana). 20. White, green. Cumana. 1822.
 — *Domingensis* (St. Domingo). 30. Yellow. green. St. Domingo. 1818.
 — *dulcis* (sweet). 20. White, green. New Spain. 1818.
 — *horrida* (horrid). 30. Yellow. Jamaica. 1800.
 — *Juliflora* (July-flower). 30. White. S. Amer. 1826.
 — *siliquastrum* (siliqua-podded). 30. White. Chili. 1827.

PROSTANTHE'RA. (From *prostheke*, appendage, and *anthera*, anther; connections of the anthers are spurred. Nat. ord., *Labiates* [Lamiaceæ]. Linn., 14-*Didynamia* 21-*Angiospermia*.)

Greenhouse evergreen shrubs, from New Holland. Frequently by seeds in a slight hotbed, in April; generally by cuttings of the young shoots in sandy soil; sandy peat, with plenty of fibre in it, and a portion of broken pots and charcoal nodules mixed with it, and good drainage. Winter temp., 38° to 46°. *Lasianthos* stood some years against a wall in the Gardens of the Horticultural Society.

- P. cærulea* (blue-flowered). 3. Blue. May. 1824.
 — *denticulata* (toothed). 4. July. 1824.
 — *lasianthos* (woolly-flowered). 3. Purple, lilac. June. 1808.
 — *prunelloides* (prunella-like). Purple. April. 1826.
 — *violacea* (violet). 5. Violet. June. 1820.

PRO'TEA. (From *Proteus*, a sea-god, who could transform himself into any shape; referring to the diversity of the species. Nat. ord., *Proteads* [Proteaceæ]. Linn., 4-*Tetrandria* 1-*Monogynia*.)

Greenhouse evergreen shrubs, from the Cape of Good Hope. Cuttings of ripened young shoots, cut close to a joint, and the leaf there, and perhaps the one above, removed, the rest allowed to remain, inserted firmly in sand, over a little sandy loam, the pots being three-parts filled with drainage; the pots, with their cuttings, may then be set in a cold pit, and at such a distance from the glass that shading will be little required; the glasses should also be frequently wedged up at night to prevent damping; fibry loam, with a good portion of sand, and about a fourth part consisting of a mixture of charcoal, freestone, broken pots, and a little peat. Winter temp.,

38° to 46°. These have not been tried against a wall, as they should be, with moveable lights, or reed coverings, to be taken away in summer.

- P. acav'lis* (stemless). 1½. Purple. July. 1802.
 — *acuminata* (sharp-pointed). 3. Purple. May. 1809.
 — *amplexicaulis* (stem-clasping). 1½. Purple. February. 1802.
 — *angustata* (narrow-leaved). 1. Purple. June. 1820.
 — *canaliculata* (channel-leaved). 3. Pink. July. 1800.
 — *coccinea* (scarlet). 5. Scarlet. June. 1824.
 — *cordata* (heart-leaved). 1½. Purple. April. 1790.
 — *cynaroides* (artichoke-like). 1½. Purple. August. 1774.
 — *elongata* (lengthened). 4½. Purple. July. 1820.
 — *formosa* (handsome). 6. Red. May. 1789.
 — *grandiflora* (large-flowered). 8. White. May. 1787.
 — — *marginata* (bordered). 6. White. June. 1795.
 — *hirsuta* (hairy). 4. Pale. June. 1819.
 — *latifolia* (broad-leaved). 7. Purple. August. 1806.
 — — *coccinea* (scarlet). 5. Scarlet. August. 1806.
 — — *viridiflora* (green-flowered). 7. Green. August. 1806.
 — *lepidocarpon* (scaly-fruited). 6. Purple. May. 1806.
 — *ligulifolia* (strap-leaved). 7. Purple. April. 1798.
 — *longifolia* (long-leaved). 2. Purple. May. 1798.
 — *macrophylla* (large-leaved). 8. White. May. 1824.
 — *magnifica* (magnificent). 6. White. April. 1789.
 — *melaleuca* (black and white). 6. Purple. May. 1786.
 — *mellifera* (honey-bearing). 6. Pale yellow. September. 1774.
 — — *alba* (white). 6. White. September. 1795.
 — *mucronifolia* (pointed-leaved). 3. White. September. 1803.
 — *na'na* (dwarf). 2. Pink. May. 1787.
 — *nerifolia* (oleander-leaved). 6. White. March. 1806.
 — *obtusata* (blunt-leaved). 10. Red. March. 1786.
 — *pulchella* (neat). 3. Red. June. 1795.
 — — *ciliata* (hair-fringed). 3. Red. June. 1795.
 — — *glabra* (smooth). 3. Red. June. 1795.
 — — *speciosa* (showy). 3. Red. June. 1795.
 — *revoluta* (curled-back-leaved). 1½. Purple. May. 1824.
 — *speciosa* (showy). 2. Purple. April. 1786.
 — *turbiniiflora* (top-shaped-flowered). ½. Pink. April. 1803.
 — *villifera* (hair-bearing). 7. Purple. August. 1800.

PROTECTION. See SCREENS.

PRUNE'LLA. Self-Heal. (Altered from the German *Die breane*, a disease of the jaws; supposed medicinal qualities. Nat. ord., *Labiates* or *Lipworts* [Lamiaceæ]. Linn., 14-*Didynamia* 1-*Gymnospermia*.)

All hardy herbaceous perennials, except *ovata*, which is annual. Seeds, and divisions of the plant in spring; ornamental for rock-works and the front of flower-borders.

- P. grandiflora* (large-flowered). ½. Blue. August. Austria. 1596.
 — *Marryatæ* (Mrs. Marryat's). 1½. Purple. July.
 — *ovata* (egg-leaved). ½. Purple. July. America.
 — *vulgaris* (common). ½. Pink. July. Britain.
 — — *elongata* (lengthened). Violet. July. N. Amer.
 — — *flore-pleno* (double-flowered). ½. Pink. July. Britain.

P. vulgaris hispida (bristly). Pale purple. July. Europe.

— *pinnatifida* (deep-cut-leaved). Purple. July. South Europe.

— *rubra* (red). $\frac{1}{2}$. Red. July. Britain.

— *Webbia* (Webb's). 1. Lilac. August.

PRUNING, as practised in the garden, has for its object the regulation of the branches to secure the due production of blossom and maturity of fruit. If carried to too great an extent that object is not attained, for every tree requires a certain amount of leaf-surface for the elaboration of its sap; and, therefore, if this be reduced too much, blossom-buds are produced less abundantly, for leaves are more necessary for the health of the plant; and by a wise provision, the parts less requisite for individual vigour are superseded by the parts more needed. On the other hand, if the branches are left too thick, they overshadow those beneath them, and so exclude the light as to prevent that elaboration of the sap, without which no blossom-buds are formed, but an excessive production of leaves, in the vain effort to attain, by an enlarged surface, that elaboration which a smaller surface would effect in a more intense light. The appropriate pruning is given when considering each species of fruit trees, and here we must confine ourselves to a few general remarks. The season for pruning must be regulated, in some degree, by the strength of the tree; for although, as a general rule, the operation should not take place until the fall of the leaf indicates that vegetation has ceased, yet if the tree be weak, it may be often performed with advantage a little earlier, but still so late in the autumn as to prevent the protrusion of fresh shoots. This reduction of the branches before the tree has finished vegetating directs a greater supply of sap to those remaining, and stores up in them the supply for increased growth next season. If the production of spurs be the object of pruning a branch, it should be pruned so as to leave a stump; because, as the sap supplied to the branch will be concentrated upon those buds remaining at its extremity, these will be productive of shoots, though otherwise they would have remained dormant, it being the general habit of plants first to develop and mature those parts that are farthest from the roots. It is thus that the filbert is induced to put forth an abundance of young bearing wood, for its fruit is borne

on the annual shoots, and similar treatment to a less severe extent is practised upon wall-fruit.

The chief guide in pruning consists in being well acquainted with the mode of the bearing of the different sorts of trees, and forming an early judgment of the future events of shoots and branches, and many other circumstances, for which some principal rules may be given; but there are particular instances which cannot be judged of but upon the spot, and depend chiefly upon practice and observation. *Peaches*, *Nectarines*, and *Apricots* all produce their fruit principally upon the young wood of a year old; that is, the shoots produced this year bear the year following; so that in all these trees a general supply of the best shoots of each year must be everywhere preserved at regular distances, from the very bottom to the extremity of the tree on every side; but in winter-pruning, or general shortening, less or more, according to the strength of the different shoots, is necessary, in order to promote their throwing out, more effectually, a supply of young wood the ensuing summer, in proper place for training in for the succeeding year's bearing.

Vines produce their fruit always upon the young wood-shoots of the same year, arising from the eyes of the last year's wood only; and must, therefore, have a general supply of the best regular shoots of each year trained in, which, in winter-pruning, must be shortened to a few eyes, in order to force out shoots from their lower parts, only properly situated to lay in for bearing the following year.

Figs bear also only upon the young wood of a year old, and a general supply of it is, therefore, necessary every year; but these shoots must at no time be shortened, unless the ends are dead, because they always bear principally towards the extreme part of the shoots, which, if shortened, would take the bearing or fruitful parts away; besides, they naturally throw out a sufficient supply of shoots every year for future bearing, without the precaution of shortening.

Apple, *Pear*, *Plum*, and *Cherry* trees bear principally on spurs, arising in the wood of from two or three to ten or twenty years old, the same branches and spurs continuing to bear a great number of years; so that, having once procured a proper set of branches to form a spread-

ing head, no farther supply of wood is wanted than some occasional shoots now and then to supply the place of any worn-out or dead branch. The above-mentioned spurs or fruit-buds are short, robust shoots of from about half an inch to one or two inches long, arising naturally, first towards the extreme parts of the branches of two or three years old, and as the branch increases in length, the number of fruit-buds increase accordingly.

In pruning, always cut quite close, both in the summer and winter-pruning. In the summer-pruning, if attended to early, while the shoots are quite young and tender, they may be readily rubbed off quite close with the thumb; but when the shoots become older and woody, as they will not readily break, it must be done with a knife, cutting them as close as possible; and all winter-pruning must always be performed with a knife.

Summer-pruning is a most necessary operation. Young shoots require thinning to preserve the beauty of the trees and encourage the fruit; and the sooner it is performed the better. It is, therefore, advisable to begin this work in May, or early in June, removing all superfluous growths and ill-placed shoots, which may be done with considerably more expedition and exactness than when the trees have shot a considerable length. Where, however, a tree is inclined to luxuriance, it is proper to retain as many of the regular shoots as can be commodiously trained in with any regularity, in order to divide and exhaust the too abundant sap. It will be necessary to review the trees occasionally, in order to reform such branches or shoots as may have started from their places, or taken a wrong direction; and according as any fresh irregular shoots produced after the general dressing may be displaced, or as the already trained ones advance in length, or project from the wall or espalier, they should be trained in close.

In the winter-pruning, a general regulation must be observed, both of the mother branches, and the supply of young wood laid in the preceding summer; and the proper time for this work is any time in open weather, from the fall of the leaf in November, until March; but the sooner the better. In performing this work, it is proper to unnaïl or loosen a chief part of the branches, particularly of

peaches, nectarines, apricots, vines, and other trees requiring an annual supply of young wood.

PRUNUS. Plum. (From *prune*, a plum. Nat. ord., *Almondworts* [Drupacæ]. Linn., 12-Icosandria 1-Monogynia.)

Hardy deciduous trees, white-flowered, and blooming in April. Seeds for varieties and stocks, suckers for grafting and budding; deep, loamy soil, if calcareous all the better. For the cultivated Plum, the Muscle and St. Julian stocks are generally used. When dwarfs are desired, the Myrobalan Plum is preferred. To obtain stocks in great plenty, the long shoots from the stools of last year's growth are laid down in the spring their full length, and covered with soil; almost every bud sends up a shoot, and roots are formed nearly contemporaneously. In autumn, the shoot laid down is cut off, and then cut into as many pieces as there are young shoots and roots. See PLUM.

- P. caudicans* (whitish). 15. 1820.
- *Coccomilla* (Coccomilla). 20. Calabria. 1824.
- *divaricata* (spreading). 10. Caucasus. 1820.
- *domestica* (domestic. Plum). 20. England.
- *armenioides* (apricot-like. *Drap d'Or*). 20.
- *flo're-pl'no* (double-flowered). 20.
- *foliis variegat'is* (variegated-leaved). 20.
- *heterophylla* (variable-leaved). 20. 1846.
- *Myrobalana* (Myrobalan). 20.
- *pendula* (drooping). 1838.
- *Turone'nsis* (Turin. *Premier Swiss*). 20. Turin.
- *insit'itia* (grafted). 20. Britain.
- *flo're-pl'no* (double-flowered). 20.
- *fructu luteo alb'o* (yellowish-white-fruited). 20.
- *fructu nigro* (black-fruited). 20.
- *fructu rubro* (red-fruited). 20.
- *maritima* (sea). 4. N. Amer. 1800.
- *Mume* (Mume). 2. Japan. 1841.
- *pubescens* (downy). 1818.
- *spino'sa* (spiny. *Sloe-tree*). 15. Britain.
- *flo're-pl'no* (double-flowered). 10. Tarascon.
- *foliis variegat'is* (variegated-leaved). 10. Britain.
- *macrocarpa* (large-fruited). 10. Britain.
- *microcarpa* (small-fruited). 10. Britain.
- *ovata* (egg-fruited). 10. Britain.

PSEUDO-BULB. By this term is described the fleshy stem of the orchids; and the term is applicable as it resembles a bulb more than a stem.

PSIDIUM. Guava. (The Greek name once applied to the Pomegranate. Nat. ord., *Myrtleblooms* [Myrtacæ]. Linn., 12-Icosandria 1-Monogynia. Allied to *Myrtus*.)

Stove, white-flowered evergreens. Cuttings of young shoots, getting a little firm at their base, in sand, under a bell-glass, and in bottom-heat; sandy, fibry loam and peat, with the addition of leaf-mould and a little dried cow-dung, provided the drainage is good and plentiful. Winter temp., 48° to 55°; summer, 60° to 85°. But several, such as *Cattleyanum*, will not only live, but produce their fruit in a greenhouse. The best *Guavas* we have seen were produced on the back of a vinery, from which the frost was little more than excluded in winter. See GUAVA.

- P. Araca* (Araca). 4. May. Brazil. 1820.
 — *aromatitum* (aromatic). 5. Guiana. 1779.
 — *Cattleyanum* (Catley's). 10. May. S. Amer. 1818.
 — *Chinense* (Chinese). May. China. 1828.
 — *Indicum* (Indian). 12. June. E. Ind. 1824.
 — *montanum* (mountain). 60. Jamaica. 1779.
 — *myrtifolium* (myrtle-leaved). 6. April. 1820.
 — *nilgrum* (black-fruited). May. China.
 — *oligospermum* (few-seeded). 10. 1817.
 — *polycarpon* (many-fruited). 3. May. Trinidad. 1810.
 — *pomiferum* (apple-bearing). 10. June. W. Ind. 1692.
 — — *sapidissimum* (most-savoury). 10. June. 1824.
 — *pumilum* (dwarf). 2. May. E. Ind. 1824.
 — *pyrifera* (pear-bearing). 10. June. W. Ind. 1656.
 — *rubrum* (red-fruited). May. China. 1820.

PSILA. See CARROT MAGGOT.

PSORA'LEA. (From *psoraleos*, warted; the appearance of some of the species. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 17-*Diadelphica* 4-*Decandria*. Allied to *Amorpha*.)

Herbaceous, by division, as fresh growth commences; shrubs, by cuttings of the half-ripened shoots in April or May, in sand, under a glass; sandy peat, and sandy, fibry loam. Winter temp. for these, 40° to 48°. *Glandulosa* has stood in the open air for a number of years near London. There are some annuals and biennials, but not worth cultivating.

HARDY HERBACEOUS.

- P. lupinella* (small lupin). 2. Purple. June. Carolina. 1812.
 — *macrostachya* (long-spiked). 3. Purple. July. California. 1833.
 — *onobrychia* (saintfoin-like). 3. Purple. August. N. Amer. 1818.
 — *orbiculata* (round-leaved). 4. Purple. June. California. 1835.

GREENHOUSE EVERGREEN SHRUBS.

- P. aphylla* (leafless). 2. Blue. June. Cape of Good Hope. 1790.
 — *arboorea* (tree). 6. Bluish. May. Cape of Good Hope. 1814.
 — *Mutisii* (Mutis's). Purple. July. Mexico. 1828.
 — *odoratissima* (most-fragrant). 6. Pale blue. June. Cape of Good Hope. 1725.
 — *Palestina* (Palestine). 2. Violet. June. Levant. 1771. Herbaceous.
 — *pinna'ta* (leafleted). 6. Blue. June. Cape of Good Hope. 1690.
 — *pubescens* (downy). 2. Pale blue. August. Lima. 1825.
 — *repens* (creeping). 1½. Blue. July. Cape of Good Hope. 1774.
 — *sericea* (silky). 3. Violet. September. Cape of Good Hope. 1815.
 — *spicata* (long-spiked). 4. Blue. April. Cape of Good Hope. 1774.
 — *stachydis* (stachys-leaved). 3. Brown. April. Cape of Good Hope. 1793.
 — *striata* (channelled). 3. Blue. May. Cape of Good Hope. 1816.
 — *tenuifolia* (fine-leaved). 2. White. blue. June. Cape of Good Hope. 1793.
 — *tomentosa* (woolly). 3. Blue. June. Cape of Good Hope. 1820.

- P. verrucosa* (warted). 3. Blue. July. Cape of Good Hope. 1774.
 — — *intermedia* (intermediate). 3. Blue. June. Cape of Good Hope. 1820.

PSYLLA. The Chermes is allied to the Aphis. *P. pyri*, Pear Chermes, appears in May, not unlike a large Aphis, crimson-coloured, shaded with black. Mr. Kollar says, when pairing is over, the female lays her eggs in great numbers, near each other, on the young leaves and blossoms, or on the newly-formed fruit and shoots. They are of a longish shape, and yellow; and without a magnifying glass, they resemble the pollen of flowers. They are called either nymphs or larvæ in this state, according to the extent of their development; and, like their parents, have their mouth in the breast. After a few days, they change their skins, and become darker, and somewhat reddish on the breast, and rather resemble bugs than plant-lice, having the extreme point of the body somewhat broad, and beset with bristles. After changing their skins, they quit the leaves, blossoms, and fruit, and proceed more downwards to the bearing wood and the shoots of last year, on which they fix themselves securely, one after the other, in rows, and remain there till their last transformation.

When the nymphs have moulted for the last time, and have attained their full size, the body swells out by degrees, and becomes cylindrical. They then leave their associates, and before they lay aside their nymph-like covering, they search out a leaf to which they fasten themselves firmly, and appear as if they were lifeless. After a few minutes, the skin splits on the upper part of the covering, and a winged insect proceeds from it. It is of a pleasant green colour, with red eyes and snow-white wings. It very much resembles its parents in spring, even in the colour. After a few days, this Chermes has assumed the colours of the perfect insect; the head, collar, and thorax are of an orange colour, and only the abdomen retains its green hue. It now flies away from the place of its birth to enjoy the open air.

P. mali (Apple Chermes). This, according to the same author, appears in June. In September, they pair, and lay their eggs, which are white, and pointed at both ends, a line and a half long, and the fourth of a line thick, and become

yellow before the young escapes. The Apple Chermes lays its eggs in different places of the twigs of an apple-tree; usually, however, in the furrows of the knots, and sometimes in a very regular manner. The larvæ are scarcely escaped from the egg in the open air, when they hasten to the nearest bud, and begin to gnaw its scales. On the second day after their birth, they cast their first skin, after which they appear nearly of their former shape and colour. The second changing of the skin can sometimes be scarcely seen at all, because the larva not only puts out a thicker string with the tubercle, but also an immense number of very fine entangled threads or small hairs, which it turns upwards over its back, and with them entirely covers its body and head. In sunshine, these strings look transparent, as if they were made of glass, and become of a greenish variable colour. Under this screen the Chermes are secured from every attack of other insects; for no ants, mites, or bugs can disturb them in their fortification, or consume them as their prey. After changing the second skin, the young assume a different colour and form; they now become light green all over, the abdomen much broader than the thorax, and on the side of the latter, rudiments of the wings are distinctly seen. The third time of changing the skin comes on in about eight days, sometimes sooner and sometimes later, according to the weather. After this skin, the wing rudiments very distinctly make their appearance, and become larger and whiter the nearer the insect approaches to the perfect state. The body is also of a light green, and the larvæ have black eyes, and blackish antennæ. At last the time arrives when the insect assumes the perfect state; it then retires to a part of the leaf which it had selected, and after having firmly fixed itself there, the back splits open, and the beautiful-winged Chermes appears from the nymph. The back of the thorax is of a light green, the abdomen is marked with yellow rings, and the membranous wings with strongly-marked, snow-white veins.

P. crategi infests the camellia.

P. ficus and *P. rosæ* are respectively on the fig and rose-trees. All the species are destroyed by syringing with tobacco-water until the insects are dead, and then syringing with water only. See APHIS.

PTELEA. Shrubby Trefoil. (From *ptao*, to fly; winged fruit. Nat. ord., *Xanthoxyls* [*Xanthoxylacæ*]. Linn., 4-*Tetrandria* 1-*Monogynia*.)

Pinna'ta requires a greenhouse; cuttings of ripe shoots in sand, under a hand-glass; sandy loam and peat. *Trifolia'ta* and its variety are hardy; seed in April, and by layers in autumn; any common light soil.

P. pinna'ta (leafleted). 20. White. May. Norfolk Island. 1829.

— *trifolia'ta* (three-leaved). 12. Green. June. N. Amer. 1704.

— *variegata* (variegated-leaved). 12. Green. June. 1846.

PTELIDUM. (So named from its resemblance to *Ptelea*. Nat. ord., *Spindle-trees* [*Celastracæ*]. Linn., 4-*Tetrandria* 1-*Monogynia*.)

Stove evergreen shrub. Cuttings of young shoots in sand, under a glass, in heat; sandy peat and fibry loam, with pieces of charcoal. Winter temp., 50° to 60°; summer, 60° to 85°.

P. ova'tum (egg-leaved). 6. Greenish-white. Madagascar. 1818.

PTERIS. Brake. (From *pteron*, a wing; the shape of the fronds, or leaves. Nat. ord., *Ferns* [*Polypodiacæ*]. Linn., 24-*Cryptogamia* 1-*Filices*.)

All brown-spored. See FERNS.

HARDY.

P. aquili'na (eagle-like). 3. July. Britain.
— *argentea* (silvery). 3. July. Siberia. 1816.
— *atropurpurea* (purple). 3. August. N. Amer. 1770.
— *caudata* (tailed). 2. October. N. Amer. 1777.
— *pedata* (double-lobed). 3. July. Virginia. 1820.

GREENHOUSE.

P. arguta (sharp-notched). 1. August. Madeira. 1778.
— *Cretica* (Cretan). 1. July. Candia. 1820.
— *esculentum* (eatable). 3. August. N. S. Wales. 1815.
— *falcata* (sickle-shaped). 1. June. N. Holland. 1820.
— *intra-marginata* (within-margined). 1. September. Mexico. 1828.
— *Kingiana* (King's). June. Norfolk Island. 1831.
— *latizonata* (broad-zoned). 1½. June. Moreton Bay. 1831.
— *subverticillata* (slightly-whorled). 1. Mexico. 1831.
— *tremula* (trembling). 3. July. N. Holland. 1820.
— *umbrosa* (shady). 3. July. N. Holland. 1823.

STOVE.

P. allosorus (allosorus-like). 1.
— *amplea* (large). 6. July.
— *calomeganos* (neat-dark). 3. September. Cape of Good Hope. 1830.
— *Cervantesii* (Cervantes'). 1. July. Mexico. 1824.
— *Chinensis* (Chinese). 2. July. China. 1824.
— *collina* (hill). 3. August. Brazil.
— *cordata* (heart-shaped). 3. June. Mexico. 1820.
— *crenulata* (scalloped). 2. July. 1827.
— *discolor* (two-coloured). 3. August. Brazil. 1825.
— *edulis* (eatable). 3. New Zealand. 1837.
— *elegans* (elegant). 3. August. E. Ind. 1824.
— *felosma* (heavy-smelling). 5. July. Jamaica. 1822.

P. heterophylla (various-leaved). 4. July. Jamaica. 1820.

— *la'ctea* (milky). 1. November.

— *lanuginosa* (woolly). 3. July. Bourbon. 1819.

— *lat'a* (broad). 3½. June. Brazil. 1841.

— *longifolia* (long-leaved). 2. August. W. Ind. 1770.

— *Peruviana* (Peruvian). October. Peru. 1830.

— *Plumieri* (Plumier's). 2. July. S. Amer. 1818.

— *rotundifolia* (round-leaved). 1½. July. New Zealand. 1824.

— *sagittata* (arrow-shaped). 3. June. S. Amer. 1826.

— *serrulata* (saw-edged). 1½. August. India. 1770.

— *spinulosa* (small-spined). 1½. September. 1834.

— *sulcata* (furrowed). 5. June. Jamaica. 1841.

— *ternifolia* (three-leaved). 1. June. 1838.

PTEROCARPUS. (From *pteron*, a wing, and *karpos*, a fruit; seed-pods with wing-like appendage. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 16-Monadelphia 7-Dodecandria. Allied to Dalbergia.)

Stove evergreen trees. Cuttings of half-ripened, stubby side-shoots in sand, under a glass, and in bottom-heat; rich, fibry loam. Winter temp., 50° to 55°; summer, 60° to 85°.

P. Brownei (Brown's). 10. White, red. W. Ind. 1733.

— *Dalbergioides* (Dalbergia-like). 10. Yellow. E. Ind. 1817.

— *dra'co* (dragon). 40. White. W. Ind. 1820.

— *flavus* (yellow). Yellow. April. China. 1826.

— *Indicus* (Indian). 30. White. E. Ind. 1813.

— *marsipium* (pouched). 40. White. E. Ind. 1811.

— *Plumieri* (Plumier's). 10. White. S. Amer. 1820.

— *Rohrii* (Rohr's). 20. Guiana. 1816.

— *santaloides* (sandal-wood-like). 50. Yellow. Sierra Leone. 1793.

— *santalinus* (red Saunder's wood). 60. Yellow. E. Ind. 1800.

— *scandens* (climbing). 15. Yellow. Caraccas. 1817. Climber.

— *Sieberi* (Sieber's). 10. White, red. Guinea. 1824.

PTEROCARYA. (From *pteron*, a wing, and *caryon*, a nut; winged fruit. Nat. ord., *Juglands* [Juglandaceæ]. Linn., 21-Monocia 9-Enneandria. Allied to Juglans.)

Hardy deciduous tree; by layers of the young shoots; also by grafting on the Walnut; deep, moist soil in warm places; in cold situations shallow, poor soil will be best, that the wood may not be stronger than the sun will ripen.

P. Caucasica (Caucasian). 40. April. N. Amer.

PTERODISCUS. (From *pteron*, a wing, and *discus*, a disk. Nat. ord., *Pedaliads* [Pedaliaceæ]. Linn., 14-Didynamia 2-Angiospermia. Allied to Martynia.)

Stove herbaceous perennial. Seeds in spring and autumn; division of the plant, and cuttings of young shoots under a bell-glass, in the beginning of spring and in the middle of autumn; sandy loam and leaf-mould. Winter temp., 40° to 48°; summer, 60° to 75°.

P. speciosus (showy-flowered). 2. Lilac, purple. May. Africa. 1844.

PTERONEURON. (From *pteron*, a wing, and *neuron*, a nerve; winged seed-ord. Nat. ord., *Crucifers* [Brassicaceæ]. Linn., 15-Tetradynamia. Allied to Cardamine.)

Both species by seeds, and *carnosum* by divisions and cuttings in spring; light, sandy soil.

P. carnosum (fleshy-leaved). 1. White. June. Hungary. 1824. Hardy herbaceous.

— *Græcum* (Grecian). ½. White. June. South Europe. 1710. Hardy annual.

PTEROSPERMUM. (From *pteron*, a wing, and *sperma*, a seed; winged seeds. Nat. ord., *Byttneriads* [Byttneriaceæ]. Linn., 16-Monadelphia 7-Dodecandria. Allied to Astrapea.)

Stove, white-flowered, evergreen trees, from the East Indies. Cuttings of half-ripened, stubby side-shoots, cut close to the stem, in sand, and in bottom-heat; sandy, fibry loam and lumpy peat, with good drainage. Winter temp., 50° to 55°; summer, 60° to 85°.

P. acerifolium (maple-leaved). 10. August. 1790.

— *platentifolium* (plane-leaved). 15. 1820.

— *semisagittatum* (half-arrow-leaved). 10. 1820.

PTILOTRICHUM. (From *ptilon*, a feather, and *thrix*, a hair. Nat. ord., *Crucifers* [Brassicaceæ]. Linn., 15-Tetradynamia. Allied to Alyssum.)

Hardy, white-flowered, deciduous shrubs. Cuttings in spring and summer; light, sandy soil; knolls and rock-works.

P. canescens (hoary). April. Siberia. 1828.

— *elongatum* (lengthened). April. Altai. 1836.

PTERONIA. (From *pteron*, a wing; feathery scales on the flower-receptacle. Nat. ord., *Composites* [Asteraceæ]. Linn., 19-Syngenesia 1-Equalis. Allied to Chrysocoma.)

Greenhouse, yellow-flowered, evergreen shrubs, from the Cape of Good Hope. Cuttings of young shoots in sandy soil, under a hand-light; also by seeds in a slight hotbed, in spring, or in the greenhouse, in summer; fibry loam and sandy peat. Winter temp., 40° to 48°.

P. camphorata (camphor-scented). 3. June. 1774.

— *echinata* (hedgehog-like). 2. July. 1818.

— *fasciculata* (bundle-flowered). 2. June. 1818.

— *flexicul'tis* (bending-stalked). 3. July. 1812.

— *glomerata* (crowded). 2. June. 1817.

— *oppositifolia* (opposite-leaved). ½. July. 1774.

— *pu'llens* (pale). 2. June. 1816.

— *scariosa* (membranous). 2. July. 1815.

— *sri'cta* (upright). 3. May. 1774.

PTEROPSIS. (From *pteron*, a wing; and *opsis*, like; shape of the fronds, or leaves. Nat. ord., *Ferns* [Polypodiaceæ]. Linn., 24-Cryptogamia 1-Filices.)

Stove Fern. See FERNS.

P. furcata (forked). Brown. June. Trinidad. 1824.

PUCCON. *Sanguinaria*.

PUDDLING. See MUDDING.

PUEARIA. (Named after M. Puerari, a Danish botanist. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 16-Monadelphia 6-Decandria. Allied to Clitoria.)

Greenhouse, yellow-flowered, evergreen climbers, from Nepaul. Cuttings of half-ripened shoots in sand, under a glass; sandy peat and fibry loam. Winter temp., 40° to 48°.

P. tuberosa (tuberose). 3. 1806.
Wallichii (Wallich's). 3. 1826.

PULMONARIA. Lungwort. (From *pulmonarius*, diseased lungs; referring to its supposed efficacy in those diseases. Nat. ord., *Borageworts* [Boraginacæ]. Linn., 5-Pentandria 1-Monogynia.)

Hardy herbaceous perennials. Divisions in spring; common garden-soil.

- P. angustifolia* (narrow-leaved). 2. Violet. April. Britain.
- *oblongata* (oblong). 1. Pink. May. Germany.
- *azurea* (light blue). 1½. Blue. April. Poland. 1823.
- *Dahurica* (Dahurian). 1. Blue. May. Dahuria. 1812.
- *denticulata* (small-toothed). 2. Blue. June. N. Amer. 1800.
- *grandiflora* (large-flowered). 1. Pink. May. France. 1819.
- *marginata* (bordered-leaved). 1. Blue. June. Louisiana. 1813.
- *maritima* (sea-side). Blue. July. Britain.
- *molle* (soft). 2. Blue. June. N. Amer. 1805.
- *officinalis* (shop). 1. Pink. April. England.
- *alba* (white-flowered). 1. White. June. England.
- *paniculata* (panicled). 1½. Blue. June. Hudson's Bay. 1778.
- *parviflora* (small-flowered). Blue. July. Canada. 1827.
- *pubescens* (downy). 1. Purple. May. Russia. 1821.
- *saccharata* (sugared). 1. Pink. June. Europe. 1817.
- *Sibirica* (Siberian). 1. Blue. June. Siberia. 1801.
- *tuberosa* (tuberous). 2. Pink. May. Hungary. 1824.
- *Virginica* (Virginian). 1½. Blue. April. N. Amer. 1799.

PULTENEA. (Named after Dr. Pulteny. Nat. ord., *Leguminous Plants* [Fabacæ]. Linn., 10-Decandria 1-Monogynia. Allied to *Gastrolobium*.)

Greenhouse, yellow-flowered, evergreen shrubs, from New Holland. Cuttings of the points of shoots as growth is nearly finished, or, better still, small side-shoots, when from two to three inches long, in sand, in April, under a bell-glass; two parts of sandy, fibry peat to one part of fibry loam, with a little charcoal and good drainage. Winter temp., 40° to 48°; summer, 60° to 75°. Plenty of air, and screened from the full sun during the hottest period of the year.

- P. argentea* (silvery). 1. April. 1824.
- *aristata* (awned). 1½. May. 1824.
- *aspera* (rough). 1½. June. 1824.
- *bifida* (two-lobed). 2. April. 1817.
- *brachytropis* (short-keeled). 1½. Purple, orange. April. 1838.
- *cane-scens* (hoary). 1. April. 1822.
- *comosa* (tufted). 1½. May. 1822.
- *cordata* (sharp-hearted-leaved). May. 1832.
- *crassifolia* (thick-leaved). 2. May. 1824.
- *cuneata* (wedge-leaved). 1. June. 1824.
- *Daphnoides* (Daphne-like). 2. April. 1792.
- *denticata* (tooth-bracted). 2. June. 1820.
- *echinula* (small-prickled). 1½. April. 1823.
- *exilis* (yielding). 1½. May. 1801.
- *hypolemptra* (brightish). 1. May. 1824.
- *incurva* (bent-in). 2. May. 1823.
- *juniperifera* (juniper-like). 1½. June. 1824.

- P. linophylla* (flax-leaved). 2. April. 1789.
- *microphylla* (small-leaved). 1. May. 1810.
- *mucronata* (pointed-leaved). 2. May. 1826.
- *obcordata* (reversed-egg-leaved). 2. June. 1808.
- *oxalidifolia* (oxalis-leaved). 2. April. 1826.
- *pedunculata* (long-flower-stalked). May. 1820.
- *plumosa* (feathery). 1½. April. 1824.
- *polifolia* (polium-leaved). 2. May. 1824.
- *polygalifolia* (polygala-leaved). 2. May. 1817.
- *procumbens* (lying-down). 2. April. 1823.
- *racemulosa* (small-racemed). 2. April. 1820.
- *retusa* (abrupt-ended). 1. April. 1789.
- *rosmarinifolia* (rosemary-leaved). 2. May. 1824.
- *rupestris* (rock-inhabiting). 1. 1845.
- *scaabra* (rough-leaved). 1½. April. 1803.
- *squarrosa* (spreading). 2. June. 1825.
- *stipularis* (stipuled). 2. April. 1792.
- *stricta* (upright). 2. June. 1803.
- *subumbellata* (slightly-umbelled). 1. April. 1831.
- *tenuifolia* (thin-leaved). 1½. April. 1817.
- *thymifolia* (thyme-leaved). 1. May. 1810.
- *vestita* (clothed). 3. April. 1803.
- *villifera* (hair-bearing). 2. May. 1824.
- *villosa* (shaggy). 2. May. 1790.

PUNICA. Pomegranate. (From *punicus*, scarlet; the colour of the flowers. Nat. ord. *Myrtleblooms* [Myrtacæ]. Linn., 12-Icosandria 1-Monogynia.)

Deciduous trees, all blooming in August. Cuttings of the shoots and roots; layers and grafting; any light, rich soil. It flourishes against a wall, but in such places the twigs must be encouraged to grow, or there will be few flowers. The double kinds grafted on the single, and grown in rich loam, become nice flowering plants, as the plants do not grow so vigorously as on their own roots, but flower much longer. *Na'na* requires the stove.

- P. grandatum* (common-grained). 18. Red. South Europe. 1548.
- *albescent* (whitish). 10. Whitish. China.
- *albescentis flore-pleno* (double-whitish). 10. Whitish.
- *flavum* (yellow). 10. Yellow.
- *rubrum flore-pleno* (double-red-flowered). 10. Red. South Europe.
- *na'na* (dwarf). 5. Red. E. Ind. 1723.

PUNNET. See BASKET.

PURSHIA. (Named after F. Pursh, writer on American plants. Nat. ord., *Roseworts* [Rosacæ]. Linn., 12-Icosandria 1-Monogynia. Allied to *Agrimonia*.)

Hardy evergreen shrub. Cuttings of young shoots in sand, under a hand-light, in early summer; also by seeds, treated as rose-seeds; sandy, poor soil.

- P. tridentata* (three-tooth-leaved). 2. Yellow. N. Amer. 1826.

PURSLANE. (*Portulaca*.) *P. oleracea*, Green, or Garden Purslane. *P. sativa*, Golden Purslane.

A light, rich soil they thrive in most, and they must have a warm situation, as a south border. Sow in February and early in March, in a moderate hotbed, to remain where sown; and at the close of March, and once monthly, during April, May, and the summer months until the end of August, in the open ground.

Sow in drills six inches apart, very thin, and not more than a quarter of an inch deep. Keep the seedlings clear of weeds, and thin to six or eight inches asunder. In dry weather water moderately two or three times a week.

In general, they are ready for gathering from in six weeks after sowing, the young shoots being made use of from two to five inches in length, and the plants branch out again.

The hotbed crops require the air to be admitted as freely as the weather permits, the temperature ranging between 50° and 75°.

To obtain Seed.—A few of the earliest border-raised plants must be left ungathered from, the strongest and largest leaved being selected. They must be cut immediately the seed is ripe, laid on a cloth, and when perfectly dry, thrashed, and the refuse is best separated by means of a very fine sieve.

PURSLANE-TREE. *Portulaca'ria*.

PUSCHKI'NIA. (Named after *M. Pouschkin*, a Russian botanist. Nat. ord., *Lily-worts* [Liliacæ]. Linn., 6. *Hexandria* 1. *Monogynia*. Allied to Hyacinth.)

Half-hardy bulb. Offset-bulbs; deep, sandy loam; requires a little protection, or to be taken up in winter.

P. scilloi'des (scilla-like). 4. Pale blue. May. Siberia. 1819.

PUTTY is a compound of boiled linseed-oil and whiting, but as it may be bought in London at half-a-guinea per cwt., it is scarcely worth while to make it. One hundred weight is enough for puttying about three hundred square feet of glass.

Old putty may be softened by applying to it rags dipped in a saturated solution of caustic potash, leaving them on for twelve hours; or by rubbing a hot iron along the putty.

If the gardener does make putty, the whiting should be well dried, and then pounded and sifted till it becomes a fine powder, and is quite free from grit. The whiting, a little warm, should be gradually added to the oil, and well-mixed by means of a piece of stick, or a spatula. When it is sufficiently stiff, it should be well worked with the hand on a table, and afterwards beaten on a stone with a wooden mallet till it becomes a soft, smooth, tenacious mass. A ball of putty, when left some days, becomes somewhat hard, but may be easily softened by heating.

Pu'YA. (Native name. Nat. ord., *Bromelworts* [Bromeliacæ]. Linn., *Hexandria* 1. *Monogynia*.)

Stove herbaceous perennials, except *magnisp'atha*, which is a stove epiphyte. Seeds in a hotbed, but chiefly by suckers; sandy loam and peat. Winter temp., 55° to 60°; summer, 60° to 85°.

P. Altenstei'nii (Altenstein's). White. Colombia. 1836.

— *gigante'a* (gigantic). Carmine, white. April. Brazil. 1845.

— *cæru'lea* (blue). Blue. June. Chili. 1827. Greenhouse.

— *coarct'ata* (compressed). 1. Yellow. May. Chili. 1822.

— *heterophy'lla* (various-leaved). 1. Pink. May. Mexico. 1838.

— *magnisp'atha* (large-spathed). 3. Green, white. May. S. Amer. 1820.

— *pyramida'ta* (pyramidal). 1. Yellow. June. Peru. 1822.

— *recurva'ta* (curled-back). 1. White. April. Brazil. 1843.

— *rubricæu'lis* (red-stemmed). Blue, red. June. Chili. 1827.

— *sulphu'rea* (sulphur-coloured). 2. Yellow. Chili. 1832.

PYCNO'STACHYS. (From *pyknos*, dense, and *stachys*, a spike; dense flower-spikes. Nat. ord., *Labiates* [Lamiacæ]. Linn., 14. *Didynamia* 1. *Gymnospermia*.)

Stove annual. For culture, see *OCTUMN*.

P. cæru'lea (blue). 3. Blue. August. Madagascar. 1825.

PYRE'THRUM. Feverfew. (From *pyr*, fire; alluding to its acrid roots. Nat. ord., *Composites* [Asteracæ]. Linn., 19. *Syngenesia* 2. *Superflua*.)

All white-flowered, except where otherwise mentioned. Hardy kinds, divisions and seeds, and common garden-soil; greenhouse kinds, by cuttings under a hand-light, in sandy, light soil; sandy, fibry loam, and leaf-mould; half-shrubby kinds, such as *fenicula'tum*, will not only do well in cold greenhouses, but will probably answer for the bottom of conservative walls.

GREENHOUSE EVERGREENS.

P. Brousonet'i (Brousonet's). 2. July. Canaries. 1817.

— *coronopifol'ium* (buckhorn-leaved). 2. Canaries. — *diversifol'ium* (variable-leaved). 4. July. N. Holland. 1823. Herbaceous.

— *frutescens* (shrubby). 3. Canaries. 1699.

— *grandiflorum* (large-flowered). 3. Canaries. 1815.

— *speciosum* (showy). 3. Canaries. 1815.

HARDY ANNUALS.

P. brevira'dia'tum (short-rayed). 4. Yellow. July. 1818.

— *e'legans* (elegant). 1. July. Mount Baldo. 1816. Biennial.

— *Indicum* (Indian). 3. Yellow. July. E. Ind. 1810.

— *inod'orum* (scentless). 1. August. Britain.

— *parviflorum* (small-flowered). 24. July. 1820.

— *præcox* (early). 1. June. Caucasus. 1818.

HARDY HERBACEOUS.

P. achilleæfol'ium (milfoil-leaved). 2. Yellow. August. Caucasus. 1823.

— *alp'inum* (alpine). 4. July. Switzerland. 1759.

- P. alpinum pubescens* (downy). $\frac{1}{2}$. July. Switzerland. 1819.
 — *Barrelieri* (Barrelier's). $\frac{1}{2}$. July. South Europe. 1820.
 — *bipinnatum* (doubly-leafted). $\frac{3}{4}$. Yellow. June. Siberia. 1796.
 — *Bocco'ni* (Bocconi's). $\frac{1}{2}$. Yellow. July. Spain. 1823.
 — *Caucasicum* (Caucasian). $\frac{1}{2}$. July. Caucasus. 1804.
 — *ceratophylloides* (hornwort-like). $\frac{1}{2}$. June. Piedmont. 1819.
 — *cinerariofolium* (cineraria-leaved). $\frac{2}{3}$. July. Dalmatia. 1826.
 — *corymbosum* (corymbed). $\frac{1}{2}$. July. Germany. 1596.
 — *Halleri* (Haller's). $\frac{1}{2}$. June. Switzerland. 1819.
 — *latifolium* (broad-leaved). $\frac{2}{3}$. June. Pyrenees. 1820.
 — *leptophyllum* (fine-leaved). $\frac{1}{2}$. August. Caucasus. 1821.
 — *macrophyllum* (large-leaved). $\frac{3}{4}$. July. Hungary. 1803.
 — *Mundianum* (Mundiana). $1\frac{1}{2}$. July. France. 1816.
 — *maritimum* (sea). $\frac{1}{2}$. August. Britain.
 — *maximum* (largest). $\frac{1}{2}$. July. South Europe. 1818.
 — *millefolium* (thousand-leaved). $\frac{2}{3}$. Yellow. July. Siberia. 1731.
 — *palustre* (marsh). $\frac{1}{2}$. June. Armenia. 1820.
 — *parthenifolium* (parthenium-leaved). $\frac{2}{3}$. July. Caucasus. 1804.
 — *parthenium* (common-pellitory). $\frac{2}{3}$. July. Britain.
 — *pluriflorum* (double-flowered). $\frac{2}{3}$. July.
 — *pinatifidum* (deeply-cut-leaved). $\frac{2}{3}$. July. 1823.
 — *uliginosum* (marsh). $1\frac{1}{2}$. August. Hungary. 1816.

PYROLA. Winter-green. (From *pyrus*, a pear-tree; resemblance of the leaves. Nat. ord., *Winter-greens* [Pyrolacæ]. Linn., 10-*Decandria* 1-*Monogynia*. Allied to *Galax*.)

Hardy herbaceous perennials. Seeds and divisions in a shady, sandy peat-border.

- P. asarifolia* (asarium-leaved). $\frac{1}{2}$. Green, yellow. N. Amer. 1822.
 — *chlora'ntha* (greenish-yellow-flowered). Yellow. N. Amer. 1822.
 — *convoluta* (rolled-together). $\frac{1}{2}$. Green, white. N. Amer. 1818.
 — *dentalta* (toothed-leaved). Yellow. N. Amer. 1827.
 — *elliptica* (oval-leaved). $\frac{1}{2}$. White. N. Amer. 1818.
 — *media* (intermediate). $\frac{1}{2}$. White, red. England.
 — *minor* (smaller). $\frac{1}{2}$. Red. Britain.
 — *occidentalis* (western). Yellow. N. Amer. 1827.
 — *rotundifolia* (round-leaved). $\frac{1}{2}$. White. Britain.
 — *secunda* (side-flowering). $\frac{1}{2}$. White. Britain.
 — *uniflora* (single-flowered). $\frac{1}{2}$. White. Britain.

PYROLI'RON. Flame Lily. (From *pyr*, fire, and *lirion*, a lily. Nat. ord., *Amarylids* [Amaryl'idacæ]. Linn., 6-*Hexandria* 1-*Monogynia*. Allied to *Hyacinthus*.)

Very rare greenhouse bulbs, flowering about Midsummer, before the leaves are full-grown, and require rest from December to April. Offset-bulbs; sandy loam and leaf-mould; a greenhouse or a cold pit.

- P. aureum* (golden). $\frac{1}{2}$. Gold. June. Peru. 1833.
 — *flavum* (yellow). Yellow. Peru.

PYRUS. Pear-tree. (From *peren*, the

Celtic name of the pear. Nat. ord., *Applaworts* [Pomacæ]. Linn., 12-*Icosandria* 1-*Monogynia*.)

Hardy deciduous trees, white-flowered, except where otherwise mentioned. Seeds for stocks and new varieties; as, also, in the case of the timber-trees, for the continuance of the species; but for all particular sorts, by budding and grafting upon wild pears, apples, quinces, and thorns, according to the future effects required; also by suckers; good garden-soil, and deep, loamy soil for the wild varieties. See **PEAR**, **APPLE**, and **QUINCE**.

- P. acerba* (sour). $\frac{20}{100}$. April. Europe.
 — *Americana* (American). $\frac{15}{100}$. May. Canada. 1782.
 — *amygdaliformis* (almond-shaped). $\frac{15}{100}$. May. South Europe. 1810.
 — *angustifolia* (narrow-leaved). $\frac{20}{100}$. Pink. May. N. Amer. 1750.
 — *arbutifolia* (arbutus-leaved). $\frac{4}{100}$. May. N. Amer. 1700.
 — *intermedia* (intermediate). May.
 — *pyramidalis* (dwarf). $\frac{1}{2}$. May.
 — *serotina* (late). $\frac{4}{100}$. June.
 — *aria* (white-beam-tree). $\frac{40}{100}$. May. Britain.
 — *acutifolia* (sharp-leaved). $\frac{40}{100}$. May. Europe.
 — *bullata* (blistered-leaved). $\frac{30}{100}$. May. South Europe.
 — *Cretica* (Cretan). $\frac{30}{100}$. May. Crete.
 — *obtusifolia* (blunt-leaved). $\frac{40}{100}$. May. Europe.
 — *rugosa* (wrinkled-leaved). $\frac{30}{100}$. May. South Europe.
 — *undulata* (wavy-leaved). $\frac{30}{100}$. May. South Europe.
 — *Astracantha* (Astracan. Apple). $\frac{20}{100}$. June. Astracan. 1810.
 — *aucuparia* (fowler's. Mountain Ash). $\frac{30}{100}$. May. Britain.
 — *fastigiata* (tapering). May.
 — *foliis variegatis* (variegated-leaved). $\frac{30}{100}$. May. Britain.
 — *fructu luteo* (yellow-fruited). $\frac{30}{100}$. May. Britain.
 — *auriculata* (eared). $\frac{20}{100}$. May. Egypt. 1800.
 — *baccata* (berried). $\frac{15}{100}$. Pink. April. Siberia. 1784.
 — *chamaeepilus* (bastard quince). $\frac{8}{100}$. May. Pyrenees. 1683.
 — *communis* (common. Pear). $\frac{20}{100}$. April. England.
 — *Achras* (Achras. Entire-leaved). $\frac{20}{100}$. April.
 — *pluriflorum* (double-flowered). $\frac{20}{100}$. April.
 — *foliis variegatis* (variegated-leaved). $\frac{20}{100}$. April.
 — *fructu variegato* (variegated-fruited). $\frac{20}{100}$. April.
 — *jaspida* (striped-bark). $\frac{20}{100}$. April.
 — *pyraster* (pyraster. Saw-leaved). $\frac{20}{100}$. April.
 — *sanguinolenta* (bloody). $\frac{20}{100}$. April.
 — *sativa* (cultivated). $\frac{20}{100}$. April.
 — *coronaria* (crown. Sweet-scented Crab). $\frac{20}{100}$. Pink. May. Virginia. 1724.
 — *crenata* (scalloped). $\frac{15}{100}$. May. Nepaul. 1820.
 — *depressa* (depressed). May.
 — *dioica* (dioecious). $\frac{10}{100}$. April. 1818.
 — *edulis* (eatable). $\frac{10}{100}$. April. France. 1816.
 — *elaeagnifolia* (elaeagnus-leaved). $\frac{20}{100}$. April. Siberia. 1806.
 — *floribunda* (bundle-flowered). $\frac{8}{100}$. April. China. 1818.
 — *grandifolia* (large-leaved). $\frac{5}{100}$. April. N. Amer.
 — *intermedia* (intermediate). $\frac{40}{100}$. May. Sweden. 1789.
 — *angustifolia* (narrow-leaved). $\frac{10}{100}$. May.

- P. intermedia latifolia* (broad-leaved). 40. May Denmark. 1789.
 — *lanata* (woolly). 15. April. Nepal. 1818.
 — *lanuginosa* (woollyish). 25. April. Hungary.
 — *malus* (apple-tree). 20. April. Britain.
 — *melanocarpa* (black-fruited). 4. May. N. Amer. 1700.
 — — *subpubescens* (slightly-downy). 4. May.
 — *microcarpa* (small-fruited). 10. April. N. Amer.
 — *malus* (snowy-leaved). 6. April. Austria.
 — *pinnatifida* (deeply-cut-leaved). 40. May. England.
 — — *arbutuscula* (little tree). May. Germany.
 — — *lanuginosa* (woollyish-leaved). 40. May. England.
 — — *pendula* (drooping). May. England.
 — *Pollveria* (Pollver's). 15. May. Germany. 1786.
 — *precor* (early. Paradise). 10. Blush. April. Russia. 1784.
 — *prunifolia* (plum-leaved. Siberian Crab). 20. Pink. May. Siberia. 1758.
 — *pubens* (downy). 5. May.
 — *salicifolia* (willow-leaved). 20. May. Russia. 1780.
 — *salvifolia* (sage-leaved. Aurelian). 15. May. France. 1806.
 — *Sinica* (Mount Sinai. Medlar). 20. May. Levant. 1820.
 — *Sinensis* (Chinese). May. China.
 — *sorbus* (true-service). 30. May. England.
 — — *maliformis* (apple-shaped). 30. May.
 — — *pyriformis* (pear-shaped). 30. May.
 — *spectabilis* (showy. Chinese Apple). 20. May. China. 1780.
 — *spuria* (spurius). 20. May. 1800.
 — — *pendula* (drooping). May.
 — — *sambucifolia* (elder-leaved). 20. May. 1818.
 — *tomentosa* (downy). 20. May. Europe. 1810.
 — *terminalis* (gripping. Wild-service). 50. May. England.
 — *trilobata* (three-lobed). 20. May. South Europe. 1810.
 — *variolosa* (variable-leaved). 50. May. Nepal. 1825.
 — *vestita* (clothed). April. Nepal. 1820.

Q.

QUAKING GRASS. *Briza*.

QUA'LEA. (The name in Guiana. Nat. ord., *Vochyads* [Vochyaceæ]. Linn., 1. *Monandria* 1-*Monogynia*. Allied to *Vochysia*.)

Stove evergreen tree. By seeds in a hotbed, and cuttings of half-ripened shoots in sandy soil, under a bell-glass, and in bottom-heat; peat and loam. Winter temp., 50° to 60°; summer, 60° to 85°.

Q. violacea (violet). Violet. Brazil. 1824.

QUAMO'CLIT. (From *kyamos*, a kidney-bean, and *klitos*, dwarf; resemblance of habit. Nat. ord., *Bindweeds* [Convolvulaceæ]. Linn., 5. *Pentandria* 1-*Monogynia*. Allied to *Ipomæa*.)

Seeds in a hotbed, and cuttings of the points and side-shoots of growing stems, the former plan being adopted chiefly with annuals, and the latter with perennials; the annuals being generally grown out of doors after the end of May, and the perennials in the plant stove.

STOVE PERENNIAL TWINERS.

- Q. globosa* (globular). 6. Scarlet. Mexico. 1827. Evergreen.
 — *grandiflora* (large-flowered). 6. Scarlet. Mexico. 1826. Evergreen.
 — *longiflora* (long-flowered). 6. White. June. Cuba. 1803. Herbaceous.
 — *patula* (spreading). 6. Scarlet. Mexico. 1826. Evergreen.
 — *sanguinea* (bloody). 10. Crimson. July. Santa Cruz. 1812. Evergreen.

STOVE ANNUAL TWINERS.

- Q. coccinea* (scarlet). 10. Scarlet. August. S. Amer. 1818.
 — *digitata* (hand-leaved). 10. Purple. September. W. Ind.
 — *hederifolia* (ivy-leaved). 10. Violet. July. W. Ind. 1773.
 — *luteola* (yellowish). 10. Orange, yellow. August. Guatemala. 1789.
 — *phænicea* (crimson). Crimson. June. E. Ind. 1806.
 — *serotina* (late-blooming). Orange. July. Mexico. 1824.
 — *triloba* (three-lobed). 10. Violet. July. S. Amer. 1752.
 — *vulgaris* (common). Scarlet. September. E. Ind. 1629.
 — — *albiflora* (white-flowered). White. September. E. Ind. 1629.

QU'ASSIA. (From the name of a slave (Quassi), who first used the bark as a febrifuge. Nat. ord., *Quassiads* [Simarubaceæ]. Linn., 10. *Decandria* 1-*Monogynia*.)

Stove evergreen tree, the source of the well-known Quassia-chips, used for poisoning flies; the bitter has also been substituted for hops. Cuttings of ripe shoots in sand, under a bell-glass, in heat; sandy, rich loam and fibry peat. Winter temp., 55° to 65°; summer, 65° to 90°.

Q. amara (bitter). 20. Red. June. Guiana. 1790.

QUENOUILLE is a fruit-tree with a central stem, and its branches trained in horizontal tiers, the lowest being the longest, and the others gradually lessening in length as they do in age; so that the tree, like a spruce-fir, acquires a pyramidal form.

QUERCITRON. *Que'rcus tinctoria*.

QUE'RCUS. The Oak. (From the Celtic *quer*, fine, and *cuez*, a tree. Nat. ord., *Mustworts* [Corylaceæ]. Linn., 21. *Monæcia* 9-*Polyandria*.)

By acorns, sown as they drop from the tree; or collected, dried, and kept packed in sand, in a dry place, until the following March, when they may be sown in rows, and covered half an inch deep; deep, loamy soil they like best. Particular varieties are kept up by grafting.

- Q. ægilops* (egilops. *Velonia*). 20. Levant. 1731.
 — — *latifolia* (broad-leaved).
 — — *pendula* (drooping).
 — *agrifolia* (scabby-leaved). May. Mexico. 1837.
 — *alba* (white). 60. May. N. Amer. 1724.
 — — *pinnatifida* (deeply-cut-leaved). 60. May. N. Amer. 1724.
 — — *repanda* (wavy-leaved). 60. May. N. Amer.

- Q. ambigua* (ambiguous). 60. May. N. Amer. 1800.
— Apennina (Apennine). 40. May. South Europe.
— aquatica maritima (sea). 40. N. Amer.
— nana (dwarf). 12. May. N. Amer. 1738.
— australis (southern). May. Portugal. 1835.
— ballotta (ballotta. *Barbary*). 60. May. Barbary.
— calycina (large-calyxed). May. Europe.
— castaneifolia (chestnut-leaved). 60. Crimea. 1846.
— Castella (Castile). May. Europe.
— Catesbyi (Catesby's). 15. May. N. Amer. 1823.
— cerris (bitter oak). 50. May. South Europe. 1735.
— Austraca (Austrian). 40. May. Austria. 1824.
— ca'na ma'ior (larger-hoary-leaved). May. South Europe.
— ca'na mi'nor (lesser-hoary-leaved). May. South Europe.
— Fulhamensis (Fulham). 80. May. Fulham.
— pendula (drooping). 50. May. South Europe.
— Ragnal (Ragnal). 50. May. Ragnal.
— variegata (variegated-leaved). 50. May. South Europe.
— vulgaris (common). 50. May. South Europe. 1735.
— coccifera (kermes-bearing). 10. May. South Europe. 1683.
— coccinea (scarlet). 50. May. N. Amer. 1691.
— Cookii (Captain Cook's). Gibraltar. 1835.
— crenata (scalloped). May. Portugal.
— dealbata (whitened). May. Nepal. 1828.
— digitata (hand-leaved). April. Europe.
— elsculus (eatable. *Italian*). 40. May. South Europe. 1739.
— expansa (spreading). May. South Europe.
— faginea (beech-like). South Europe. 1824.
— falcata (sickle-shaped). 80. May. N. Amer. 1763.
— glauca (milky-green). Japan. 1822.
— Gramuntia (Grammont). 40. June. France. 1736.
— haliphileos (sea-side). April. France.
— hemispherica (half-globe). May. Mexico. 1816.
— heterophylla (various-leaved). 40. May. N. Amer.
— ilex (holly. *Evergreen*). 60. May. South France. 1581.
— crispa (curled-leaved). 60. May. South France.
— fagifolia (beech-leaved). 60. May. South France. 1781.
— integrifolia (entire-leaved). 60. May. South France. 1581.
— latifolia (broad-leaved). 60. May. South France. 1781.
— longifolia (long-leaved).
— serratifolia (saw-leaved). 60. May. South France. 1781.
— variegata (variegated-leaved).
— ilicifolia (holly-leaved). 5. N. Amer. 1800.
— imbricata (tiled). 40. June. N. Amer. 1786.
— infectoria (dying). Levant. 1812.
— insignis (remarkable). 60. Mexico. 1846.
— lanata (woolly-leaved). Nepal. 1818.
— laurifolia (laurel-leaved). 60. May. N. Amer. 1786.
— hybrida (hybrid). 60. May. N. Amer. 1786.
— laurina (laurel-like). 30. Mexico. 1837.
— Lezermiana (Lezermi's). May. South Europe.
— Lusitana (Portuguese). 40. June. Portugal. 1824.
— lutea (yellow). 20. May. Mexico. 1825.
— lyrata (lyre-leaved). 15. May. N. Amer. 1786.
— macrocarpa (large-fruited). 40. N. Amer.
— maritima (sea). May. N. Amer. 1811.
- Q. montana* (mountain-chestnut). 15. May. N. Amer. 1800.
— myrtifolia (myrtle-leaved).
— nigra (black). 20. May. N. Amer. 1739.
— obtusiloba (blunt-lobed). 60. May. N. Amer. 1819.
— olivaeformis (olive-shaped-fruited). 60. May. N. Amer. 1811.
— palustris (marsh). 60. May. N. Amer. 1800.
— pedunculata (common, long-flower-stalked). May. Britain.
— fastigiata (tapering). 4. May. South Europe. 1820.
— foliis variegatis (variegated-leaved). 40. May. Britain.
— heterophylla (various-leaved). May. Britain.
— Hodgkinsii (Hodgin's). May. Britain.
— pendula (drooping). 70. May. Britain.
— pubescens (downy). 60. May. Britain.
— purpurea (purple). May. Britain.
— phellus (willow. *Cork-tree*). N. Amer. 1723.
— cinerea (ash-coloured). 10. May. N. Amer. 1789.
— humilis (dwarf). 20. May. N. Amer.
— latifolia (broad-leaved). 60. May. N. Amer.
— maritima (sea). May. Virginia.
— sericea (silky. *Running*). 2. May. N. Amer. 1724.
— sylvestris (wood). 60. May. N. Amer. 1723.
— prasinus (light-green). May. Spain. 1824.
— prinus (prunus. *Chestnut*). 60. June. N. Amer. 1730.
— acuminata (pointed-leaved). 80. May. N. Amer. 1822.
— monticola (mountain). 60. May. N. Amer. 1730.
— palustris (marsh). 90. N. Amer. 1720.
— pumila (dwarf). 4. May. N. Amer. 1823.
— tomentosa (downy-leaved). 70. N. Amer. 1800.
— pseudo-coccifera (false-kermes-bearing).
— suber (false-cork). 60. May. S. Amer. 1824.
— Fontanesii (Desfontaine's). 30. May. Calabria.
— pumila (dwarf). 1. May. South Europe.
— Pyrenaica (Pyrenean). 4. May. Pyrenees. 1824.
— Quexigo (Quexigo). Spain. 1845.
— rotundifolia (round-leaved). June. Spain. 1818.
— rubra (red. *Champion*). 40. May. N. Amer. 1739.
— sessiliflora (stalkless-flowered). 60. May. Britain.
— australis (southern). April. Portugal. 1835.
— Falkenbergensis (Falkenberg). Hanover. 1837.
— macrocarpa (large-fruited). 60. May. Britain.
— pubescens (downy). 40. May. Britain.
— Skinneri (Mr. Skinner's). 60. Mexico. 1843.
— suber (cork). 20. May. Spain. 1581.
— angustifolium (narrow-leaved). 30. June.
— dentatum (toothed-leaved). 50. June.
— latifolium (broad-leaved). 40. June.
— tinctoria (dyer's). 70. May. N. Amer.
— angulosa (angular-lobed). 70. May. N. Amer.
— sinuosa (wavy-edged-leaved). 70. May. N. Amer.
— Turneri (Turner's). Levant. 1812.
— virens (green). 40. May. N. Amer. 1739.

QUICKSET, the same as the Hawthorn, or Whitethorn, *Crataegus oxyacantha*. See HEDGE.

QUILLA'JA. (From *quillai*, the Chilian name. Nat. ord., *Roseworts* [Rosaceæ]. Linn., 10-*Decandria* 4-*Pentagynia*. Allied to *Kageneckia*.)

Hardy evergreen shrub, the bark of which is used instead of soap. Cuttings of ripened shoots in sandy loam, under a hand-light, and very likely by layers; sandy, deep loam, and a sheltered place. *Q. saponaria* (soap). White. April. Chili. 1832.

QUINA, QUINQUINA, OR QUINO. *Cincho'na*. **QUINCE.** *Cydo'nia vulgaris*.

Varieties.—Common, Apple-shaped. Pear-shaped, and Portugal. The last is the best, and very distinct from the others. *C. Sine'nsis*, the Chinese Quince, has been fruited in this country, but it requires a wall. The fruit is very different from that of either the Common or Portugal Quinces; it is cylindrical, about six inches in length, and exceedingly gritty.

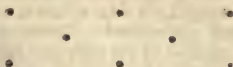
Culture.—The trees may be raised from seed sown in autumn, but there is no certainty of having the same, or any good fruit from the seedlings. The several varieties may be propagated by cuttings and layers; also by suckers from such trees as grow upon their own roots, and by grafting and budding upon their own or pear stocks.

Cuttings, layers, and suckers may be planted in autumn, winter, or early spring. Choose young wood for the cuttings and layers. They will be rooted by next autumn; then transplanted into nursery rows two feet asunder; plant the suckers also at the same distance, and train the whole for the purposes intended; if for standards with a stem, to any desired height, from three to six feet; then encourage them to branch out at top, to form a head; and those designed as dwarfs must be headed near the ground, and trained accordingly, for espaliers or dwarf standards.

When they have formed tolerable heads, plant them out finally. Standard quinces, designed as fruit-trees, may be stationed in the garden or orchard, and some by the sides of any water in bye places, suffering the whole to take their own natural growth; and as espaliers, they may be arranged with other moderate-growing trees, about fifteen feet apart. For other particulars of culture, see **PEAR**.

QUINCUNX is the form resulting from planting in rows, with one plant opposite the centre of each vacancy between two

plants in the row on each side of it, as in this diagram:—



QUISQUA'LIS. (From *quis*, who, and *qualis*, what kind; when first named it was doubtful to which class and order to refer it. Nat. ord., *Myrobalsans* [Combretaceæ]. Linn., 10-*Decandria* 1-*Monogynia*. Allied to *Combretum*.)

Stove climbers. Cuttings of the young shoots when several inches in length, after the plant has been stumped in after-flowering, taking the cuttings off with a heel, and inserting them in sand, under a bell-glass, and in bottom-heat; peat and loam, but most of the latter. Winter temp., 43° to 56°; summer, 60° to 85°.

Q. glabra (smooth). 20. Java. 1815.

—*Indica* (Indian). 20. Orange, red. June. Java. 1815.

—*pubescens* (downy). 20. Orange, red. Guinea.

—*Sine'nsis* (Chinese). 10. Rose. July. Canton. 1841.

—*villosa* (shaggy). Pegu. 1818.

QUIVY'SIA. (*Bois de Quivi*, of the Isle of France. Nat. ord., *Meliads* [Meliaceæ]. Linn., 10-*Decandria* 1-*Monogynia*. Allied to *Melia*.)

Stove evergreen tree. Cuttings of ripened shoots in sand, under a glass, and in a brisk bottom-heat; sandy loam and fibry peat. Winter temp., 48° to 55°; summer, 60° to 85°.

Q. heterophylla (various-leaved). 16. White. Isle of France. 1822.

R.

RACEME, a cluster. This is formed of numerous, rather distant flowers, each on its own stalk, but growing out of one central stalk, as in a bunch of currants.

RADISH. *Raphanus sativus*.

Spring Varieties.—*Long rooted*:—Long White; called also the White Transparent, White Italian, and Naples Radish. White Russian. Twisted Radish of Mons. Semi-long Scarlet. Rose-coloured Semi-long. Scarlet, or Salmon, or Scarlet-transparent Radish. Purple, formerly called exclusively the Short-topped. Red-necked White.

Turnip-rooted:—White Turnip. Early White Turnip. Pink, Rose-coloured, Scarlet and Crimson Turnip. Purple Turnip. Yellow Turnip. New Yellow Short-topped.

Autumn and Winter Varieties.—These are all of the turnip-rooted kind, and are in the order they follow in coming into use:—Yellow Turnip. Round Brown. White Spanish. Oblong Brown. Black

Spanish. Large Purple. Winter or Purple Spanish.

The *soil*, a light loam, and moderately fertile, should be dug a full spade deep, and well pulverized. Manures should not be applied at the time of sowing. The situation should always be open, but for early and late crops warm and sheltered.

Sowing.—For the earliest productions, during December, January, and February, in a hotbed; and in the open ground once a month during winter, and every fortnight during the other seasons of the year.

In the open ground the seed is generally sown broadcast, and well raked in, but in drills is much the most preferable mode. In either case it must be inserted thin, and buried a quarter of an inch deep. Thick sowing causes the tops to be large, and the roots sticky.

If broadcast, the beds should be laid out four or five feet wide, divided by alleys a foot in width, the earth from which may be thrown out to raise the beds. If drills are employed for the long-rooted, they are required to be three inches asunder, for the turnip-rooted four or five, and for the Spanish, &c., six or eight.

When the seedlings are well up, and advanced to five or six leaves, they are ready for thinning; the spindle-rooted to three inches apart, the turnip-rooted to four, and the larger varieties to six. The spaces, however, require to be rather increased in moist, warm weather. In dry weather they ought to be watered regularly every night. The early and late crops that have to withstand the attacks of frost, &c., should be kept constantly covered with dry straw or fern, to the depth of about two inches, or with matting, supported by hooping until the plants make their appearance, when the covering must be removed every mild day, but renewed towards evening, and constantly during frosty or tempestuous weather.

The bed should have a good watering the morning before that on which they are taken up, but none afterwards until subsequent to the drawing.

To draw for Salads whilst with their seed-leaves, sowings must be made once a week. The management is precisely that required for rape, mustard, &c.

To obtain Seed, leave in April, or early May, some of the most perfect plants of a main crop. When in full vigour, they

must be taken up with as little injury as possible to the roots and leaves, and planted in rows, three feet asunder each way, being inserted by the dibble completely down to the leaves. Water must be applied until they have taken root, and occasionally throughout their growth, especially when in flower. If practicable, it is best to leave some plants where raised.

To obtain seeds of the Black Spanish, some seeds must be sown in March, or some of the winter-standing crop left or transplanted during that month. The pods must be cut as soon as they become of a brown hue, and well dried.

Two varieties must never be raised near each other, and seed of the previous year's raising should always be employed.

The seeds of the different varieties are easily distinguished by an experienced seedsman. Those of the long white radish are small, flat, and pale; of the scarlet and purple long-rooted, large; and of the first very light-coloured, compared with those of the latter; of the white turnip, small, round, and brown; scarlet turnip, rather larger, and somewhat darker; purple turnip, larger and brown, being similar to the long-rooted purple, except in size.

Forcing.—A moderate hotbed is required for this crop, of a length according with that of the frame to be employed; the earth about eight inches deep, on the surface of which the seed is to be sown as soon as the violent heat is abated, and an additional fourth of an inch sifted over it.

The seedlings are in general up in less than a week, and in six they will be ready to draw. Throughout their growth air must be admitted as freely as is allowable. The glasses, however, must be closed on the approach of evening, and mats or other covering put on in proportion to the severity of the season. When the earth appears at all dry, a light watering must be given at noon.

The plants must not stand nearer than two inches to each other. The temperature required is from 50° to 70°; and it must be kept to this heat by moderate linings as required.

If there be a deficiency of frames, hoops and mats may be employed, a frame of boards being formed round the bed, light and air being admitted as freely and as often as possible. If seed

is sown within a frame without any bottom-heat, the plants will be two or three weeks forwarder than if sown in the open ground.

RA'FNIA. (Named after *C. Rafn*, a Danish botanist. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 16-Monadelphia 6-Decandria. Allied to *Hovea*.)

Greenhouse, yellow-flowered evergreens, from the Cape of Good Hope, except where otherwise mentioned. Seeds in a hotbed, in spring; cuttings of firm side-shoots at the beginning of summer, in sand, under a bell-glass; sandy peat and fibry loam, kept rough by pieces of charcoal and broken pots, and drainage well attended to. Winter temp., 40° to 48°.

R. angulata (angular-branched). 2. May. 1816.

R. cordata (heart-leaved). 2. May. 1821.
— *cuneifolia* (wedge-leaved). 2. Yellow, purple. June. 1816.

— *elliptica* (oval-leaved). 2. June. 1819.
— *filifolia* (thread-leaved). 1. May. 1816.
— *lancea* (spear-head-leaved). 2. June. 1823.
— *opposita* (opposite-leaved). 2. June. 1824.
— *triflora* (three-flowered). 3. June. 1784. Biennial.

RAGGED ROBIN. *Lychnis flo's-cu'culi*.

RAGS. See VEGETABLE MANURES.

RAGWORT. *Otho'nna*.

RAILING is of various forms, but all, if made of wood, are soon decayed if slight, and are clumsy and inelegant if strong. Iron railing is at once light, neat, and enduring, and, like the following, may be erected for about 2s. per yard.



RAKE. This implement is now much less in use than formerly, when broadcast sowing was prevalent. Now the broad hoe is quite as efficient in covering drill-sown seed. The head of the rake is best made of wood, and of this ash is most desirable. If the head be of iron, the teeth are continually becoming loose. Rakes, with heads about six inches long, are required for dressing flower-borders, but for open ground-work the length may be fifteen inches. The hoe and the rake are sometimes attached to one handle; but it is a form liable to constant entanglement in the flower-garden, for which it is designed.



RAMO'NDIA. (Named after *L. Ramond*, a French botanist. Nat. ord., *Gesnerworts* [Gesneraceæ]. Linn., 5-Pentandria 1-Monogynia. Allied to *Streptocarpus*.)

Hardy herbaceous perennial. Seeds and divisions in spring; sandy loam and a little peat; a sheltered place, or kept in a pit, in winter, as an alpine.

R. Pyreneica (Pyrenean). 4. Purple. May. Pyrenees. 1731.

RAMOON-TREE. *Tro'phis*.

RAMPION. *Phyteu'ma* and *Cy'phia phyteu'ma*.

RAMPION. *Campa'nula rapu'nculus*.

The soil ought to be moderately moist; but it must be light. A shady, rich border is most favourable.

Sow during March, April, and May, in drills six inches apart; the plants from sowings in the first two months soon run up to seed. The plants are to remain where sown; though, in case of any deficiency, those which are taken away in thinning the crops may be transplanted successfully, if removed to a border similar to the seed-bed, and inserted with the roots perpendicular, and without pressing the mould too close about them. The best time for the removal is of an evening.

They are fit for thinning when about two inches in height, and they must be set at a distance of six inches apart. The plants of the sowings during the two first-mentioned months will be fit for use at the close of August, or early in September, and continue through the autumn. Those of the last one will continue good throughout the winter, and until the following April. The soil throughout their growth must be kept moist by giving frequent waterings.

The root, for which it is cultivated, either to be sliced together with its leaves

in salads, or eaten as the radish, as well as to be boiled like asparagus, is most palatable when drawn young, and eaten fresh from the ground.

To obtain Seed, leave a few of the winter-standing plants. These flower in July and August, and ripen abundance of seed in early autumn. Gather it before it begins to scatter, and dry on a cloth before thrashing.

RA'NDIA. (Named after *J. Rand*, a London botanist. Nat. ord., *Cinchonads* [Cinchonaceæ]. Linn., 5-Pentandria 1-Monogynia. Allied to *Gardenia*.)

Stove evergreen shrubs, and white-flowered, except where otherwise mentioned. Cuttings of the young shoots in spring and summer, in sand, under a bell-glass, in a hotbed. Sandy, fibry loam and fibry peat, with a few nodules of charcoal. Temp., when at rest in winter, 45° to 50°; when growing in spring or summer, 60° to 80°.

- R. armata* (armed). 7. May. W. Ind. 1813.
- *Bowieana* (Bowie's). Pale yellow. Brazil. 1815.
- *fasciculata* (fasciated). 4. July. E. Ind. 1824.
- *floribunda* (bundle-flowered). 4. July. E. Ind. 1825.
- *horrida* (horrid). 8. May. China. 1825.
- *latifolia* (broad-leaved). 7. July. W. Ind. 1733.
- *longifolia* (long-flowered). 4. August. E. Ind. 1818.
- *macrantha* (large-flowered). 5. Cream-coloured. August. Sierra Leone. 1596.
- *obovata* (reversed-egg-leaved). 6. May. New Grenada. 1818.
- *oxyptala* (sharp-petaled). Yellowish. May. Saharanpoor. 1843.
- *parviflora* (small-flowered). 4. August. W. Ind. 1818.
- *pubescens* (downy). 5. July. Peru. 1820.
- *rotundifolia* (round-leaved). 6. July. Peru. 1820.
- *Sinensis* (Chinese). 5. July. China. 1818.

RANTRY. The Mountain Ash. (*Pyrus aucuparia*.)

RANUNCULUS. Crowfoot. (From *rana*, a frog; some of the species inhabiting marshy places. Nat. ord., *Crowfoots* [Ranunculaceæ]. Linn., 13-Polyandria 6-Polygynia.)

All yellow-flowered, except where otherwise specified. Annuals, seeds in common soil, in March and April, though few are worth the trouble, unless in a corner devoted to small native and alpine plants. Perennials, by division of the plant in spring. Aquatics, mostly natives, by division, and giving them any soil in shallow ponds or ditches; tuberous-rooted, by division of the roots in spring. *Asiaticus*, the florists' Ranunculus, and its many varieties, may be planted in stiff, rich loam, either in October or March; if the former, the beds will require to be protected a little from heavy rains and from sharp frosts. See treatment as a florist's flower.

HARDY ANNUALS.

- R. Chivus* (Scio). 4. June. Archipelago. 1827.
- *philonotis* (moisture-loving). 4. July. South Europe. 1800.
- *sessiliflorus* (stalkless-flowered). 4. June. N. Holland.

- R. trilobus* (three-lobed). 4. June. Greece. 1818.
- *tuberculatus* (pimpled). 1. June. Tauria. 1817.
- *uliginosus* (marsh). 4. June. Teneriffe. 1826.
- *ventricosus* (swollen). 4. July. Brazil.

HARDY AQUATICS.

- R. obtusifolius* (blunt-leaved). 1. White. June. England.
- *pauciflorus* (all-hairy). White. June. Britain.
- *fluvialis* (long-leaved. River). White. June. Britain.
- *polyphyllus* (many-leaved). 3. April. Hungary. 1819. Annual.
- *tripartitus* (three-parted). White. June. Europe.

GREENHOUSE HERBACEOUS.

- R. geranioides* (geranium-like). May. Mexico. 1836.
- *lappaceus* (burdock-like). 1. June. N. Holland. 1822.
- *plebeius* (common). 1. June. N. Holland. 1820.

HARDY EVERGREENS.

- R. filiformis* (thread-formed). 4. June. N. Amer. 1823. Creeper.
- *Lapponeus* (Lapland). 3. May. Lapland. 1827.

HARDY TUBEROUS-ROOTED.

- R. angulatus* (angled-stemmed). 1. Naples. 1832.
- *Asiaticus* (Asiatic. Common-garden). 3. Variegated. May. Levant. 1596.
- *sanguineus* (blood-coloured). 3. Scarlet. May. Syria.
- *tenuifolius* (fine-leaved). 3. White. May. Greece.
- *bracteatus* (large-bracted). May. Pyrenees.
- *floribundus* (double-flowered). May.
- *ochroleucus* (whitish-yellow). Pale yellow. August. England.
- *brevifolius* (short-leaved). 3. June. Naples. 1824.
- *bullatus floribundus* (blistered-leaved-double-flowered). 1. May. South Europe. 1640.
- *grandiflorus* (large-flowered). 1. May. South Europe. 1640.
- *chamaphys* (cheevil-leaved). 1. May. Portugal.
- *cicutarius* (cicuta-like). 1. May. Siberia. 1818.
- *cortusifolius* (cortusa-leaved). 1. May. Teneriffe. 1826.
- *Creticus* (Cretan). 1. May. Candia. 1658.
- *macrophyllus* (large-leaved). 2. May. Teneriffe. 1658.
- *fumariifolius* (fumitory-leaved). 1. May.
- *Garganicus* (Garganian). 4. August. Naples. 1832.
- *gracilis* (slender). 1. May. Archipelago. 1818.
- *gregarius* (flocking). 1. May. Italy. 1817.
- *hybridus* (hybrid). 3. May. Austria. 1820.
- *Illyricus* (Illyrian). 14. May. South Europe. 1596.
- *millifolius* (thousand-leaved). May. Sicily. 1820.
- *grandiflorus* (large-flowered). 3. April. Naples. 1833.
- *Monspeliacus* (Montpelier). 1. May. South France.
- *cuneatus* (wedge-leaved). 1. May. South Europe.
- *rotundifolius* (round-leaved). 1. May. South Europe.
- *oxypteris* (sharp-seeded). 1. Pale yellow. May. Caucasus. 1822.
- *pedatus* (doubly-lobed). 1. May. Hungary. 1805.
- *scutellatus* (shield-leaved). 3. May. Hungary. 1817.

R. tho'ra (thora-kidney-leaved). 3. May. Austria. 1710.
— *tuberosus* (tuberous). 1. June. Pyrenees. 1820.

HARDY HERBACEOUS.

R. aconitifolius (aconite-leaved). 1. White. May. Alps, Europe. 1596.
— — *crassicaulis* (thick-stemmed). 1. White. May. Europe.
— — *humilis* (lowly). 3. White. May. Europe.
— *a'cris-pl'e'nus* (acid-double-flowered). 2. June. Britain.
— *alpe'stris* (alpine). 3. White. July. Scotland.
— *amplexicaulis* (stem-clasping). 1. White. May. Pyrenees. 1633.
— *angustifolius* (narrow-leaved). 1. White. May. Grenada. 1822.
— *apiifolius* (apium-leaved). 2. White, red. June. Bonaria. 1816.
— *a'cticus* (northern). July. N. Amer. 1827.
— *auricomus* (golden-haired). 13. May. Britain.
— *Bonarie'nsis* (Buenos Ayres). 3. June. N. Amer. 1817.
— *brevicaulis* (short-stalked). May. N. Amer. 1827.
— *Breynia'nus* (Breynius's). June. Switzerland. 1818.
— *Brutius* (Brutian). 13. May. Italy. 1823.
— *bupleuroides* (hare's-a-car-leaved). 1. May. Portugal. 1826.
— *cardiophyllus* (heart-leaved). May. Canada. 1829.
— *Cassubicus* (Cassubian). 2. June. Siberia. 1794.
— *Caucasicus* (Caucasian). 13. June. Caucasus. 1820.
— *crassicaulis* (thick-stemmed). 1. June. Europe. 1827.
— *crenata* (scalloped). 3. White. June. Hungary. 1818.
— *cymbulifolia* (boat-shaped). 3. June. Siberia. 1824.
— *dissectus* (cut-leaved). 3. June. Caucasus. 1818.
— *Eschscholtzii* (Eschscholtz's). May. N. Amer. 1827.
— *fasciculatus* (bundled). 1. June. N. Amer.
— *frigidus* (cold). 3. Pale yellow. May. South Europe. 1827.
— *glaberrimus* (smoothest). May. N. Amer. 1827.
— *glacialis* (icy). 3. White. July. Lapland. 1775.
— — *aconitoides* (aconitum-leaved). 3. White. July. Switzerland. 1819.
— *Gouan'ni* (Gouan's). 1. June. Pyrenees. 1818.
— *gramineus* (grassy). 1. May. Wales.
— — *flore-pleno* (double-flowering). 1. May.
— — *phœnicifolius* (phœnx-leaved). 1. May. Europe.
— *grandiflorus* (large-flowered). 3. May. Cappadocia.
— *hirtus* (hairy). 1. June. New Zealand. 1820.
— *hispidus* (bristly). 13. June. N. Amer. 1810.
— *hyperboreus* (northern). 3. June. North Europe. 1820.
— *isopyroides* (isopyrum-like). 3. White. June. Siberia. 1818.
— *laevis* (torn). 3. White. May. South France. 1821.
— *lanuginosus* (woolly-leaved). 1. June. South Europe. 1683.
— *lingua* (tongue-leaved). 2. July. Britain.
— *montanus* (mountain). 3. June. Lapland. 1776.
— *napellifolius* (napellus-leaved). 1. July. Turkey. 1822.
— *nemorosus* (grove). 1. June. Switzerland. 1810.

R. nemorosus pauciflorus (few-flowered). 1. June. Switzerland. 1819.
— *nivialis* (snowy). 3. July. Lapland. 1775.
— *Parnassifolius* (Parnassia-leaved). 3. White. June. South Europe. 1769.
— *pedatifidus* (doubly-lobe-cut). 1. April. Siberia. 1827.
— *plantaginifolius* (plantain-leaved). 1. White. May. Piedmont. 1819.
— *platanifolius* (plane-tree-leaved). 3. White. June. Germany. 1769.
— — *flore-pleno* (double-flowered). 1. White. May. Alps. 1596.
— *Purshii* (Pursh's). July. N. Amer. 1827.
— *pygmaeus* (pigmy). 3. April. Lapland. 1810.
— *Pyreneus* (Pyrenean). 1. White. May. Pyrenees. 1807.
— — *bupleuroides* (bupleurum-leaved). 3. White. June. Pyrenees. 1818.
— *recurvatus* (curled-back-seeded). June. N. Amer. 1827.
— *repens flore-pleno* (creeping-double-flowered). 3. July.
— *rhomboides* (diamond-leaved). April. N. Amer. 1825.
— *rufus* (reddish-haired). July. Portugal. 1825.
— *rutafolius* (rue-leaved). 3. White. June. Austria. 1759.
— *Sabi'ni* (Sabine's). July. N. Amer. 1827.
— *salsuginosus* (salt). 1. April. Siberia. 1822.
— *Seguieri* (Seguier's). 3. White. June. Piedmont. 1819.
— *spicatus* (spike-flowered). 1. Yellow. April. Algiers. 1850.
— *Stevenii* (Steven's). 13. June. Volhnia. 1819.
— *tomentosus* (woolly). 1. June. N. Amer. 1820.
— *Villarsii* (Villars's). 1. June. South Europe. 1819.

RANUNCULUS (*R. Asiaticus*) as a FLORIST'S FLOWER.

Varieties.—These are very numerous and annually increased.

Soil.—This should be of a fine texture, easily broken, and moderately light. It should feel soft to the hand, and have a little—but a little—sand amongst it. The best is generally found near to rivers. Let it be laid on a long heap, not too thick, and turned over once a month for a year. It will then be in good condition for use. Remove the old soil away from the bed you intend for ranunculuses to the depth, if the situation is dry, of fifteen inches: if wet, ten inches will do. Put in a layer of very rotten cow-dung, two inches thick; then bring the soil, put in a layer of four inches, upon that put a layer of rotten hotbed dung one inch thick, and so proceed till the bed is full, and raised two or three inches above the surface. Let the bed be edged with boards or slates. Hoop it over, to protect it from heavy rain, snows, and hailstones. Turn it over, mixing the materials together well, only take care not to disturb the layer of cow-dung at the bottom. Let this turning operation

be performed two or three times at intervals of three or four weeks between, finishing the last about the end of January, so as to allow the bed to settle by the planting time in February.

Planting.—The best time for doing this is between the 8th and 20th of February. The soil of the bed ought to be neither wet nor dry. To prove its state, take up a handful, gently squeeze it, and let it fall about half a yard; if it is in a right condition, it will fall in pieces. With a rake level the soil; then, with a triangular-shaped and rather small hoe, or with the corner of a common hand-hoe, draw a drill across the bed, two inches deep; draw the next five inches distant from the first, and so on till the whole bed is finished. Commence this some fine morning, when there is a prospect of the day continuing fine. When the drills are all finished, sprinkle at the bottom of each drill some fine sand; then bring out your ranunculus roots, with a numbered label, made either of lead, with the number stamped upon it, or of wood, with each number written upon it with a black-lead-pencil upon a coating of white-lead. Begin then to plant the variety written in your book opposite No. 1; take each root between your finger and thumb, and place it at the bottom of the drill, very gently pressing it down in the sand to about half the length of the claws of each root. Having placed the first to your mind, put the next at four inches distance from it, and so proceed till you have planted all the first kind; then thrust in the numbered label, either with the number facing the kind, or with its back to it. Both ways are practised by florists, but we prefer the number to face the variety it belongs to. If our plan is followed the number should be always put in first, the whole of the variety planted, and then the second number put in, and the second kind planted. Follow on in this manner till the bed is filled. As soon as that is completed, cover the roots just over the crowns with some more of the fine sand: this sand prevents the roots from getting too wet, or moulding. Then with a rake carefully level down the soil into the drills. If your bed is not edged with boards or slates (as recommended before), stretch a line on one side of the bed, about four inches from the roots, and with the back of the spade pat the

soil on the side of the bed gently, to make it firm; then chop down the edge of the bed nearly perpendicularly.

After-culture.—It is essential to the success of this flower that the soil about them should be close and firm, almost approaching to hardness. If the bed has been rightly prepared, and the flower planted according to the instructions given, all will be well. When the tops begin to push through the soil, it will be of the greatest importance to tread the soil down very firm between the rows, and if any symptoms of cracking in the soil appear, the surface should be stirred to prevent it. Protection from sharp late frosts should be given, by covering whenever such weather is likely to take place, and it is equally beneficial to protect from heavy rains. Both are best excluded by hoops extended across the bed to support a covering of tarpaulin or oil-cloth. During April and May, should dry weather prevail, water may be cautiously administered at intervals in an evening, but only just so much as will prevent the soil of the bed from cracking; or a little moss or old, spent tanners' bark, &c., may be neatly placed between the rows, which will retain the moisture in the soil. The over-abundant application of water is a very common error, and one of the greatest evils.

The dying of leaves, in some instances, evidently depends on a want of vigour, or partial rot in the root; and, in some few cases, it would appear to be caused by large earthworms, forming their wide tracks amid the roots of the plants, nearly undermining them; but in the great majority of cases it is produced by injudicious watering.

During the expansion of the flower-buds, and when they are fully blown, an awning should be erected over the bed, as in the case of tulips, that rain and hot sun may be excluded; and gentle watering every second or third evening may be given, which will keep the bed cool and moist, and promote the size of the flower. As much air should be admitted as possible, that the flower-stems be not drawn and weakened.

Raising Seedlings.—Save seed only from varieties distinguished for excellence of form and colour. Sow in February, and place the boxes in a cool greenhouse or frame. Sow in boxes eighteen inches by eleven inches, and four inches deep,

full of loamy earth, and the surface level. Sow the seeds about the eighth of an inch apart; cover them as thinly as possible, and water with a fine rose; but place the boxes under glass, without heat. The plants usually make their appearance in about a month. Give air day and night, except in severe frost; then cover up with straw mats. With such protection, the young plants will endure the severest seasons. Put the boxes in the open ground up to the second week in May, and water daily until the leaves begin to wither; then suffer the boxes to become quite dry; and in the middle of July take them up, and preserve the roots in bags until February, and then plant them as the general stock. In the following June they flower.

Taking up.—The roots, in wet seasons, should be taken up as soon as the leaves turn yellow, as they are apt to sprout; but in dry seasons they may remain until the leaves are brown. Take them up as dry as the season will permit; complete the drying in a warm room, rather than in the sun, and store them in a dry, cool place.

Forcing.—Select tubers which have been kept three or four months, or even a year over the season of planting, these being more easily excited than those which have been only the usual time out of the soil; plant them in pots about the beginning of August; and, by bringing these into the greenhouse at different periods, a bloom is kept up from October to February.

RAPE, or COLESEED. (*Bra'ssica napus*.) Like mustard and other small salading, it may be sown at any period of the year, when in request, being allowed a separate bed. It is cultivated as **MUSTARD**, which see.

To obtain Seed.—Some plants of a sowing made about the middle of July must be thinned to eighteen inches apart; they will survive the winter, and flower in the May and June of the next year. The seed, which is produced in great abundance, ripens in July and August, and must be cut as it does so, and laid upon cloths to dry.

RAPE (EDIBLE-ROOTED). This name may be applied to a variety of the rape mentioned by Mr. Dickson, one of the vice-presidents of the Horticultural Society. Its root is white and carrot-shaped,

about the size of the middle finger. It is much more delicate in flavour than the turnip, like which root it is cooked, only that it is not peeled, but scraped, its skin being remarkably thin.

Sowing.—For the main crop, sow from the middle of July to the end of August, or even later. These will supply the table until April; and if wanted throughout the year, a little may be sown in the latter end of October, the plants from which will be fit for use during April and May; the last crop to be sown from the middle of January to the middle of February, which will come in at the end of May and during June. On a north border, and if the soil is sandy and moist, it is possible to have them sweet and tender during the whole summer, to effect which sow at the close of March and May.

Cultivation.—Thin and hoe as turnips. In dry weather the beds must be watered regularly.

Soil.—One great advantage attending the cultivation of this vegetable is, that it requires no manure. Any soil that is poor and light, especially if sandy, is suitable to it. In rich, manured soil it grows much larger, but not so sweet and good.

To obtain Seed in February or March, some of the finest roots are transplanted to two feet asunder; but it would, perhaps, be a better practice to leave them where grown. The seed must be cut as soon as ripe, and treated as directed for turnips, &c.

RAPHANUS. Radish. (From *ra*, quickly, and *phainomai*, to appear; rapid germination of the seeds. Nat. ord., *Crucifers* [Brassicaceæ]. Linn., 15-*Tetradynamia*.)

Hardy annuals. Seeds; rich, sandy soil; but for standing the winter it should be dry and poor. See **RADISH**.

R. caudatus (tailed). 1½. White, purple. July. Java. 1815.

—*La'ndra* (Landra). 3. Yellow. June. Italy. 1820. Biennial.

—*sativus* (cultivated). 3. White, purple. May. China. 1548.

RAPHIOLEPIS. Indian Hawthorn. (From *raphis*, a needle, and *lepis*, a scale; formation of the bractes. Nat. ord., *Apple-worts* [Pomaceæ]. Linn., 12-*Icosandria* 2-*Di-pentagynia*. Allied to *Cratægus*.)

Half-hardy, white-flowered, evergreen shrubs* from China. Cuttings of half-ripened shoots in sandy loam, in a sheltered place, under a hand-light; sandy loam and peat; a sheltered place against a wall, or protected in very cold places by

a cold pit; most of them have stood at least several seasons protected by a wall in the vicinity of London.

- R. Indica* (Indian). White, pink. June. 1800.
 — *phæostemon* (brown-stamened). 4. June. 1818.
 — *rubra* (red). 15. Reddish. June. 1806.
 — *salicifolia* (willow-leaved). 3. June. 1820.

RASPATILIA. (Named after *M. Raspail*, a French botanist. Nat. ord., *Bruniads* [*Bruniaceæ*]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Brunia*.)

Greenhouse evergreen. Cuttings of young, stubby shoots in sand, under a bell-glass, and in a cold frame; sandy, fibry peat. Winter temp., 40° to 48°.

R. microphylla (small-leaved). 1. White. July. Cape of Good Hope. 1804.

RASPBERRY. *Rubus idæus*.

Varieties.—The most useful are as follows:—1. Red Antwerp; 2. Yellow Antwerp; 3. Fastolf, or Filby; 4. Double-bearing. Of these, Nos. 1 and 2 have been for many years highly esteemed; but 3 has, of late, in a great degree, superseded them, being larger and of at least equal flavour, a great bearer, and possessing that desirable property in the summer Raspberries of producing occasionally fine autumnal fruit, which is superior to that of the double-bearing kinds. No. 4 is a decided autumn Raspberry. Mr. Rivers, of Sawbridgeworth, has a new variety of this from America, which is said to be very superior. Another variety is a hybrid between the Raspberry and Blackberry; this Mr. Rivers calls "the Black," and states is good for preserving.

Propagation: by Suckers.—Those who desire to make a new plantation of Raspberries will do well to obtain their suckers from a healthy stock. We have known new plantations made in cases of emergency from a stock which had stood too long in the ground, and of course were lean, if not diseased. This leanness was evidently transmitted to their progeny, and, despite high manuring, a year or two was lost before they could recover. Suckers, then, may be planted any time between October and the middle of February, and they are drawn away from the old plants by hand; a slight pull will soon show which are those disposed to colonise. Deeply-dug ground is requisite, and it should have a liberal amount of half-rotten manure. Strong suckers (drawn with a ball of soil, if possible) may be planted three in a group, at the end of September, four feet apart from centre to centre; and the rows, if

side by side, six feet apart. As soon as the leaf drops, say the beginning of November, we would prune one strong cane to three feet, a second to two feet, and a third to within a couple or three inches of the soil. By these means a nice little crop may be taken the first year, and good shoots reserved for the next.

From Seed.—This is practised chiefly with a view of raising new kinds; and the seed collected from superior berries, when thoroughly ripe, is washed from the pulp and dried, then packed in papers until spring. In the beginning of February it must be sown, and a gentle hot-bed would hurry the process much. The seedlings must be pricked out when three inches high, and generous treatment must be continued; and towards the middle of May, having been hardened off, they may be planted at once in their final destination. All that is requisite now is careful training, the keeping down suckers and watery spray; and when the shoots are five feet long, the top may be pinched to consolidate the wood.

Soil.—When wild, being an inhabitant of woods, a damp soil, somewhat retentive of moisture, is found to suit it best. We have generally known it most successful in a darkish soil of an alluvium character; any of our loams, however, of sound texture, will grow it in perfection, but the soil should be tolerably deep. A hot and loose sand, short of depth, is the least suitable. To meet the increased amount of perspiration from the leaf to which the cultivated plant is liable in sunny situations, extra provision in the way of top-dressing and mulching is highly to be commended.

Culture during the Growing Period.—Soon after the canes begin to shoot in spring, a slight thinning-out is very beneficial; this may take place about the beginning of May. In a few weeks' time a thinning of the suckers may take place, for, in general, they produce a profusion, and such draw on the resources of the plant, and exhaust the soil. About four or five may be left on each stool; if they are very gross, the moderate ones may be left; if weak, the strongest.

If they have not been mulched, it should be done immediately. As soon as the last fruit is gathered, the old bearing shoots may be cut clean away, and the young canes drawn a little closer together. When over five feet in height,

the tops may be pinched; this, however, should not be done before the end of August.

Culture during the Rest Period.—As soon as the leaves have all fallen, pruning may take place, and our practice is to leave four canes. These we cut at different heights; the tallest about four feet; the next about nine inches lower, and so on with the rest. By these means the young spray is nicely divided, and the plants fruit from bottom to top. The canes are now neatly fastened, and a top-dressing completes the rest period. All useless suckers or canes are drawn away.

Training.—The earliest and finest are obtained from canes planted beneath a south wall, and trained against it in this form. But in the open ground the best mode of training is round small hoops, thus. The worst form is plaiting the canes together; and training in arches, or other compact forms, excluding the light and warmth of the sun, is little better.

Forcing.—Raspberries may be forced, growing either in pots or in the borders of the house. They may be also planted on the outside of a pit, the bearing canes being introduced withinside, and trained to a trellis, whilst the present year's shoots are left outside.

RATTLESNAKE FERN. *Botrychium Virginicum*.

RAUWOLFIA. (Named after *L. Rauwolf*, M.D., a botanical traveller. Nat. ord., *Dogbanes* [Apocynaceæ]. Linn., 5-Pentandria 1-Monogynia. Allied to *Carissa*.)

Stove evergreen shrubs. Cuttings of the points of shoots, or stubby side-shoots, in sand, under a bell-glass, in the beginning of summer, and in bottom-heat; sandy, fibry loam, fibry peat, a little dried leaf-mould, and pieces of charcoal. Winter temp., 50° to 60°; summer, 60° to 88°.

R. canescens (hoary). 7. Pink. Jamaica. 1759.

— *nitida* (shining). 12. White. August. Spain. 1752.

— *spinosa* (thorny). Yellow. June. Peru. 1827.

— *ternifolia* (three-leaved). 3. White. May. W. Ind. 1823.

— *tomentosa* (woolly). 3. White. July. W. Ind. 1823.

REAUMURIA. (Named after *A. Reau-*

mur, the French entomologist. Nat. ord., *Reaumuriads* [Reaumuriaceæ]. Linn., 13-Polyandria 5-Pentagynia.)

Half-hardy evergreens. Cuttings from young shoots in sand, under a glass; sandy, fibry loam, fibry peat, and leaf-mould; dry soil in sheltered places; but generally requires a cold pit in winter.

R. hypericoides (St. John's-wort-like). 2. Purple. August. Syria. 1800.

— *vermiculata* (worm-like-leaved). 1. Pink. June. Sicily. 1828.

RED BAY. *Lau'rus Caroline'nsis*.

RED CEDAR. *Juniperus Virginia'na*.

RED GUM TREE. *Eucalyptus resinifera*.

RED NIGHTSHADE. *Eri'ca haliacaba*.

RED SPIDER. See ACARUS.

REEVE'SIA. (Named after *J. Reeves*, Esq., of Canton. Nat. ord., *Sterculiads* [Sterculiaceæ]. Linn., 16-Monadelphia 8-Polyandria. Allied to *Helicteres*.)

Greenhouse evergreen shrub. Cuttings of half-ripened shoots in sand, under a bell-glass; fibry loam, and a little sandy peat. Winter temp., 40° to 48°.

R. thyrsoidea (thyrs-like-flowered). 4. White. January. China. 1826.

RELHANIA. (Named after *R. Relhan*, a botanical author. Nat. ord., *Composites* [Asteraceæ]. Linn., 19-Syngenesia 2-Superflua.)

Greenhouse evergreen shrubs. Cuttings of firm young side-shoots in sand, under a bell-glass, in a cool frame, in June; sandy loam and fibry peat. Winter temp., 40° to 48°. There are several species beside the following:—

R. squarrosa (spreading). 1½. Yellow. May. Cape of Good Hope. 1774.

RENANTHERA. (From *ren*, a kidney, and *anthera*, a pollen-bag, or anther; shape of anthers. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-Gynandria 1-Monogynia.)

Stove orchids, grown in pots. See ORCHIDS.

R. arachnites (spider-like). 1. Brown, purple.

Japan. 1793.

— *coccinea* (scarlet. Chinese Air-plant). 8.

Scarlet, orange. August. Cochin-China.

1816.

— *matutina* (morning). 1. Brownish. December.

Java. 1846.

RENDLE'S TANK SYSTEM of heating was first suggested, we believe, by Mr. Rendle, nurseryman, of Plymouth. A tank of iron or wood, twenty feet long, five feet broad, and six inches deep, is constructed in the centre of the house, and surrounded by a walk, except at the end, where the boiler is fixed for heating it. The top of the tank is covered with large slabs of slate, cemented together, to prevent the excessive escape of steam. Around this is a frame sufficiently high to retain the bark, in which the pots are plunged.

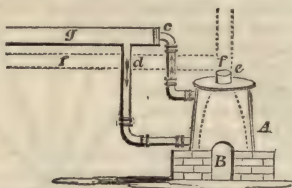
The boiler and tank are filled with water, and this circulates, when the fire is lighted under the former, by means of two pipes, one from the top of the boiler, and the other returning nearer to its bottom. The expense of pipes, and the danger of their freezing, are avoided; the fire only requires to be kept lighted for two hours at night, and again for the same period in the morning; the water, when once heated, retaining its temperature for a long time. In a small house, the apparatus can be constructed for £5, and in all for less than half the cost of hot-water pipes. The saving in tan and labour is also very great. In some places tan costs 19s. per cart-load, and where it is cheaper, the trouble and litter incident to its employment, and the dangers of loss from fungi and insects, of which it is the peculiarly fertile foster-parent, render it objectionable as a source of heat; and whenever the tan has to be renewed, the trouble and destruction of plants are always great.

"In my new propagating house," says Mr. Rendle, "the tank or cistern is placed in the centre, with a walk surrounding it, so as to enable the propagator with greater ease to attend to the plants, &c.

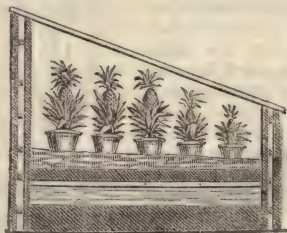
"On the outside of the house is a fire-shed, in which the boiler is fixed. The tank, made of wood, one and a half or two inches thick, which I find the cheapest material, (it also prevents the water cooling so fast as it does either in stone or iron,) may be lined with lead or zinc. Exactly in the centre of the tank is a partition, serving the double purpose of causing the water to circulate, as well as to support the edges of the slates, an aperture being left in the partition, of about two inches in breadth, to allow the water a free passage. The flow-pipe enters near the appendage of the tank, at the mouth of which pipe a piece of perforated copper is placed, as also at the return-pipe, to prevent dirt and sediment from finding their way into the boiler. After everything is properly fixed, the tank is filled with water, which, of course, at the same time fills the boiler.... The tank is about four inches deep. Across it, and resting on its sides, are placed slate stones about an inch and a half thick, cut square at the edges. These are fastened to each other by Roman cement, or Aberthaw lime, to prevent a superfluity of steam from escaping into the house....

Around the edges of the slates a piece of inch board, about nine inches deep, should be placed to enclose the sawdust, sand, moss, or other plunging material."

In the following sketch, for which, as well as for the next, we are indebted to Mr. Rendle, *A* is a transverse section of Roger's conical boiler; *B* is the fireplace; *g*, the tank; *c*, the flow-pipe; *d*, the pipe by which the water returns to the boiler; *e*, is the hole for the smoke, which, joined to a flue, *f*, can be made either to ascend the chimney at once, or to pass round the house.



The next sketch is a Pinery, fitted up with Mr. Rendle's tank.



It is described as "a very useful and most desirable structure for the growth of the Pine Apple, with a hollow wall, recommended by all garden architects in preference to a solid wall—the heat or cold being not so readily conducted as through a solid mass of masonry." Mr. Rendle might have added, that hollow walls are also much drier. — *Rendle's Treatise on the Tank System. See STOVE and HOTBED.*

RENEA'LMIA. The following should be added to *Alpinia*, instead of forming this genus:—

- R. grandiflora* (large-flowered). 1½. White. April. New Zealand. 1822.
- *paniculata* (panicked). 1½. White. June. N. Holland. 1823.
- *pulche'lla* (pretty). 1. White. June. N. Holland. 1823.

REQUIE'NIA. (Named after *M. Requin*,

a French botanist. Nat. ord., *Leguminosæ* *Plants* [Fabacæ]. Linn., 16-*Monadelphica* 6-*Decandria*. Allied to *Psoralea*.)

Stove evergreen shrubs, with yellow flowers. Cuttings of half-ripened, stubby shoots in sand, under a bell-glass, in heat; sandy loam, fibry peat, and dried leaf-mould. Winter temp., 50° to 60°; summer, 60° to 80°.

R. obcordata (reversed-heart-leaved). 1. July. Senegal. 1825.

— *sphaerosperma* (round-seeded). 1. April. Cape of Good Hope. 1816.

RESE'DA. *Mignonette*. (From *resedo*, to calm; supposed virtue for external bruises. Nat. ord., *Weldworts* [Resedacæ]. Linn., 11-*Dodecandria* 3-*Trigynia*.)

All by seeds; the half-shrubby kinds also by cuttings; seeds must be sown at different times, according as the bloom is wanted. The beginning and middle of May is early enough to sow in the open border. Though usually treated as annuals, most of the *Mignonettes* may be grown as under-shrubs or perennials, if they are prevented seedling freely, and kept from frost in winter. We have seen the common *Mignonette* that had been kept in a pot about eight years, and flowered freely every season. See MIGNONETTE.

R. Chine'nsis (China). 2. Yellow, green. June. China. 1819.

— *odora'ta* (scented-*Mignonette*). 1. Green, red. August. Italy. 1752.

— *frutescens* (shrubby). 2. August. Egypt. 1752.

— *trunca'ta* (abrupt-ended-leaved). 1½. Yellow. June. Natolia. 1836.

RESERVE GARDEN. See NURSERY.

REST. That period when a plant is not growing.

REST-HARROW. *Ono'nis*.

RESURRECTION PLANT. *Anasta'tica*.

RETANI'LLA. (The Peruvian name. Nat. ord., *Rhamnads* [Rhamnacæ]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Colletia*.)

Evergreen shrubs. Cuttings of young shoots in sand, under a glass, in summer; sandy loam and fibry peat. The species from Peru requires a warm greenhouse, and that from Chili the protection of a cold pit in winter, or a very sheltered situation out of doors, or against a wall.

R. ephedra (ephedra-like). 3. Cream. Chili. 1823.

— *obcordata* (reversed-heart-leaved). 2. Yellow. Peru. 1822.

RETARDING requires as much skill as forcing, for as the latter requires the application of all that is suitable to the promotion of a plant's rapid healthy growth, so retarding requires the withholding from it of those contingencies. Thus to retard growth, the lowest temperature, and the least degree of light compatible with healthy growth, must be secured; and to this end plants for succession are often placed on the north side of a wall. See SCREENS.

Then, again, as in the case of raspberries and strawberries, plants are often cut down in the spring, compelling them to form fresh foliage and stems, and thus be productive in the autumn instead of the summer.

The vegetation of many bulbs may be prevented by merely keeping them dry, and, indeed, the withholding the usual supply of water, giving it only in diminished quantities, is necessary in all retarding treatment. To secure the entire resting of bulbs, and of such plants as will bear so low a temperature, the atmosphere of the ice-house is effectual; and to this end it should have a few shelves for the support of boxes or flower-pots. Banks of earth ranging east and west, and facing the north at a very acute angle, are very useful in retarding the early advance to seed in hot weather of spinach, lettuces, &c. Espaliers ranging similarly, and shaded during the whole of March and the two following months, will blossom later and more unfailingly than trees more exposed to the sun in spring. Similar exclusion of heat and light retards the ripening of picked fruit, and if the air be excluded from them, or its oxygen withdrawn, fruit will remain unripened for weeks. To effect this, put a paste formed of lime, sulphate of iron, and water, at the bottom of a wide-mouthed glass-bottle, then a layer of large pebbles to keep the fruit from the paste, then fill the bottle with peaches, apricots, or plums, gathered a few days before they are ripe, cork the bottle tight, and cover the cork with melted resin. They have been thus kept for a month, and summer apples and pears for three months. They ripen when again exposed to the air.

RETINIPHYLLUM. (From *retine*, resin, and *phyllon*, a leaf. Nat. ord., *Cinchonads* [Cinchonacæ]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Hamiltonia*.)

Stove evergreen shrub. Cuttings of half-ripened shoots in sand, under a bell-glass, and in a sweet, moist bottom-heat; sandy loam and fibry peat, with pieces of charcoal. Winter temp., 55° to 60°; summer, 60° to 85°.

R. secundiflorum (side-flowering). 10. White. S. Amer. 1839.

RHA'MNUS. Buckthorn. (From *rham*, a Celtic word, signifying a tuft of branches. Nat. ord., *Rhamnads* [Rhamnacæ]. Linn., 5-*Pentandria* 1-*Monogynia*.)

Greenhouse and stove species, by cuttings in sand, under a glass, in summer, and in a cold or close, warm pit respectively; sandy loam and

leaf-mould. Hardy species, by seeds, layers, and cuttings, and more especially the latter mode with all the evergreens, which should be taken off in the autumn, and inserted in sandy soil, in a shady border, with hand-lights over them; good garden-soil.

GREENHOUSE EVERGREEN SHRUBS.

- R. amygdalinus* (almond-like). 3. Yellow. June. N. Africa.
- *celtifolius* (celtis-leaved). 20. Green, yellow. May. Cape of Good Hope.
- *crenulatus* (scalloped). 8. Green, yellow. April. Teneriffe. 1778.
- *integrifolius* (entire-leaved). 3. Green. Teneriffe. 1822.
- *prinosides* (winter-berry-like). 10. Yellow. June. Cape of Good Hope. 1778.
- *tetragynus* (four-angled). 6. Green. Cape of Good Hope. 1816.
- *Theezans* (Theezan. Tea). 2. Green. May. China.

STOVE EVERGREEN SHRUBS.

- R. Surinamensis* (Surinam). 1. Green, yellow. Surinam. 1820.
- *umbellatus* (umbelled). 6. Reddish. Mexico. 1839.

HARDY DECIDUOUS SHRUBS.

- R. alnifolius* (alder-leaved). 4. Green. May. N. Amer. 1778.
- *alpinus* (alpine). 3. Green. May. Switzerland. 1872.
- *Carolinianus* (Carolina). 4. Green. May. N. Amer. 1819.
- *catharticus* (purging). 12. Green, yellow. May. England.
- *Hydrionis* (Hydrian). 12. Green, yellow. June. Cape of Good Hope.
- *Dahuricus* (Dahurian). 10. Green, yellow. May. Dauria. 1817.
- *erythroxylon* (red-wood). 6. Yellow, green. July. Siberia. 1823.
- *angustissimum* (narrowest-leaved). Caucasus.
- *frangula* (breaking. Alder). 10. White. May. Britain.
- *angustifolius* (narrow-leaved). 10. White. May. Britain.
- *franguloides* (franzula-like). 4. Green. May. N. Amer. 1810.
- *hybridus* (hybrid). 12. Green.
- *infectorius* (dyer's). 6. Green, yellow. June. South Europe. 1683.
- *lanceolatus* (spear-head-leaved). 12. Green. May. N. Amer. 1812.
- *latifolius* (broad-leaved). 4. Green. July. Azores. 1778.
- *maculatus* (spotted). 6. Green. July. 1845.
- *longifolius* (long-leaved). 6. Green. 1823.
- *tycioides* (boxthorn-like). 6. Green, yellow. November. Spain. 1752.
- *Arragonensis* (Arragon). 6. Green, yellow. October. Arragon. 1752.
- *oleoides* (olive-like). 4. Green, yellow. June. Spain. 1753.
- *Pallasii* (Pallas's). Russia. 1838.
- *pumilus* (dwarf). 2. Green, yellow. July. Carniola. 1752.
- *Purshianus* (Pursh's). 6. Green. May. N. Amer. 1826.
- *pumilus* (weak). 1. May. Naples. 1823.
- *rupesstris* (rock). 2. Green. May. South Europe. 1752.
- *saxatilis* (rock). 1. Green, yellow. May. Europe. 1752.

- R. spatulifolius* (spatula-leaved). Russia. 1838.
- *tinctorius* (dyer's). 5. Green, yellow. May. Hungary. 1820.
- *Valentinus* (Valentia). 2. Green. May. South Europe. 1816.
- *virgatus* (twiggy). 8. Green. June. Nepaul. 1820.
- *Wulfenii* (Wulfen's). 2. Green. July. South Europe. 1758.

HARDY EVERGREEN SHRUBS.

- R. alaternus* (bastard-leaved - alaternus). 20. Green. May. South Europe. 1629.
- *angustifolius* (narrow-leaved). 20. Green. May. South Europe. 1629.
- *Baleatica* (Balearic). 20. Green. May. South Europe.
- *foliis-argenteis* (silver-edged-leaved). 20. Green. May. South Europe.
- *foliis-aureis* (golden-edged-leaved). 20. Green. May. South Europe.
- *foliis-maculatus* (spotted-leaved). 20. Green. May. South Europe.
- *Hispánica* (Spanish). 20. Green. May. South Europe.
- *boxifolius* (box-leaved). 2. Green, yellow. May. Numidia. 1820.
- *cardiocrpus* (heart-podded). 1832.
- *pubescens* (downy). 4. Pale yellow. May. France. 1817.
- *Wicklii* (Wickle's). 6. 1839.

RHAPIDOSPORA. (From *rhapis*, a needle, and *sporos*, a seed. Nat. ord., *Acanthads* [Acanthaceæ]. Linn., 2-*Diandria* 1-*Monogynia*.)

Stove herbaceous perennials, from the East Indies. For culture, see *JUSTICIA*.

- R. glabra* (smooth). Rose, yellow. June. 1824.
- *vestita* (clothed). Violet. June. 1827.

RHAPIS. (From *rhapis*, a needle; the sharp-pointed leaves. Nat. ord., *Palms* [Palmaceæ]. Linn., 23-*Polygamia* 1-*Monœcia*. Allied to *Chamærops*.)

Greenhouse Palms. Suckers generally, and by division at the roots; rich, sandy loam; must require the protection of the greenhouse; but some will probably succeed in warm situations out of doors.

- R. arundinacea* (reed-leaved). 6. Green. September. Carolina. 1765.
- *aspera* (rough). Green. May. South France.
- *cordata* (heart-leaved). Green. May. South France.
- *flabelliformis* (fan-shaped). 6. Green. August. China. 1774.

RHAPONTICUM. (From *rha*, rhubarb, and *Ponticus*, Pontus. Nat. ord., *Compositæ* [Asteraceæ]. Linn., 19-*Syngenesia* 3-*Frustranea*. Allied to *Serratula*.)

Hardy, purple-flowered, herbaceous perennials; seeds and divisions of the plant in spring; common garden-soil.

- R. Pallasii* (Pallas's). 2½. July. Switzerland. 1818.
- *pumilum* (pretty). Caucasus. 1837.
- *scariosum* (membranous). 2½. July. Switzerland. 1640.
- *lyratum* (lyre-leaved). 2. July. Switzerland. 1819.
- *uniflorum* (one-flowered). 1½. July. Siberia. 1796.

RHEE'DIA. (Named after *Rheede*, author of the *Hortus Malabaricus*. Nat. ord., *Guttifers* [Clusiaceæ]. Linn., 12-*Icosandria* 3-*Polygynia*.)

Stove evergreen. Cuttings of shoots, rather ripe, in sand, under a bell-glass, and in a moist bottom-heat; sandy loam and fibry peat. Winter temp., 50° to 55°; summer, 60° to 85°.

R. Java'nica (Javanese). Java. 1826.

RHE'UM. Rhubarb. (From *Rha*, the Russian name of the river Wolga, near which the Rhubarb was found. Nat. ord., *Buckwheats* [Polygonaceæ]. Linn., 9-*Enneandria* 2-*Trigynia*.)

Hardy herbaceous perennials. Seeds in spring, and division of the plant then, just as the buds begin to swell; deep, rich, loamy soil. See RHUBARB.

R. australe (southern). 8. Purple. Nepaul. 1823.
R. austriacum (Austrian). 5. White. May. Austria. 1800.

— *Caspicum* (Caspian). 6. White. May. Russia. 1817.

— *compactum* (compact). 3. White, green. May. Tartary. 1758.

— *crispum* (curled). 5. White. May 1800.

— *fenestratum* (windowed). 6. White. May. 1780.

— *hybridum* (hybrid). 5. White, green. May. Asia. 1778.

— *leucorhizum* (white-rooted). Striped. May. Siberia. 1827.

— *nodtans* (nodding-flowered). 8. White. May. Siberia. 1800.

— *palmatum* (hand-leaved). 5. White, green. June. Bucharja. 1763.

— *Rhaponticum* (Rhapontic). 4. White, green. May. Asia. 1573.

— *ribes* (currant-leaved). 2. White, green. May. Levant. 1724.

— *Sibiricum* (Siberian). 6. White. May. Siberia. 1800.

— *Tataricum* (Tartarian). 3. White, green. May. Tartary. 1793.

— *undulatum* (wave-leaved). 4. White, green. May. China. 1734.

RHE'XIA. (From *rhexis*, a rupture; supposed cure for ruptures. Nat. ord., *Melastomads* [Melastomaceæ]. Linn., 8-*Octandria* 1-*Monogynia*.)

Hardy herbaceous North American plants, blooming in July. Division and cuttings under a hand-light; peat and loam. Most of the perennials will succeed in a peat-border.

R. angustifolia (narrow-leaved). 3. White. 1812.

— *capitata* (hair-fringed). 1. Purple. 1812.

— *Marianna* (Maryland). 3. Purple. 1759.

— *rubella* (reddish). 3. Pink. 1823.

— *Virginica* (Virginian). 3. Purple. 1759.

RHINOPE'TALUM. (From *rhin*, a nose, and *petalon*, a petal; base of the upper sepal. Nat. ord., *Lilyworts* [Liliaceæ]. Linn., 6-*Hexandria* 1-*Monogynia*. Allied to *Fritillaria* and *Lilium*.)

Hardy bulb. Division in spring; sandy, rich loam.

R. Karelini (Kareline's). Pale pink-spotted. January. Ural. 1834.

RHIPIDO'PTERIS. (From *rhapis*, a fan, and *pterus*, a fern; for formation of the fronds. Nat. ord., *Ferns* [Polypodiaceæ]. Linn., 24-*Cryptogamia* 1-*Filices*.)

Stove, brownish-yellow-spored Ferns. See FERNS.

R. bifurcata (two-forked). March. W. Ind.

— *feniculacea* (fennel-leaved). March. W. Ind.

— *peltata* (shield-leaved). March. S. Amer.

— *tripartita* (three-parted). March. Brazil.

RHI'PSALIS. (From *rhips*, a willow-branch; referring to the flexible branches. Nat. ord., *Indian Figs* [Cactaceæ]. Linn., 12-*Icosandria* 1-*Monogynia*.)

Greenhouse succulents. Cuttings, dried at the base for a few days before inserting in rough gravel or brick-rubbish; sandy loam, brick-rubbish, and leaf-mould. Winter temp., 40° to 55°; summer, 60° to 85°.

R. brachiatia (forked). 3. Greenish-yellow. March. Buenos Ayres. 1843.

— *Cassytha* (Cassytha). 1. Yellow. September. W. Ind. 1758.

— *grandiflora* (large-flowered). 1. White. July. S. Amer. 1816.

— *Hookeriæna* (Hooker's). 1. White. August. W. Ind.

— *mesembryanthoides* (mesembryanthemum-like). 4. White. S. Amer. 1817.

— *parasitica* (parasitic). 1. Yellow. S. Amer. 1800.

— *spatulata* (spatulate). Yellow. July. Brazil. 1836.

RHIZO'PHORA. Mangrove. (From *rhiza*, a root, and *phoreo*, to bear; the branches send down roots like the Banyan-tree. Nat. ord., *Mangroves* [Rhizophoraceæ]. Linn., 11-*Dodecandria* 1-*Monogynia*.)

Not likely to be much cultivated until we obtain salt-water aquariums in our large tropical houses. The Mangrove flourishes in rich, loamy soil, in thickets, by the side of the ocean, in tropical latitudes, and possesses the striking feature that the seeds vegetate while attached to the plant, and send out a long radicle, which generally reaches the soft mud, while the top puts out leaves; numbers of plants are thus joined together, something in the same way as the Banyan-tree.

R. Manglie (Mangle). 10. Pale yellow. E. Ind. 1820.

RHODA'NTHE. (From *rhodon*, a rose, and *anthos*, a flower. Nat. ord., *Composites* [Asteraceæ]. Linn., 19-*Syngenesial*-*Æqualis*.)

Greenhouse annual. Seeds, sown in September, in a hotbed; and also in March, for plants to bloom in spring and summer; sandy loam, and leaf-mould, and fibry peat, to sow and prick off in; as the plants are put in their flowering pots, use dried, rotten cow-dung and silver sand freely. After the first potting, an airy place in the greenhouse.

R. Mangle'sii (Captain Mangle's). 14. Rose, yellow. June. Swan River. 1832.

RHODDON, or RODDON-TREE. *Py'rus aucuparia*.

RHODODE'NDRON. (From *rhodon*, a rose, and *dendron*, a tree. Nat. ord., *Heathworts*

[Ericaceæ]. Linn., 10-*Decandria* 1-*Monogynia*.)

Seeds in spring, in shallow pans, in sandy peat, and kept in a close, cool frame until the seedlings are fit to be handled, when they should be pricked off into similar soil, and gradually exposed to sun and air; layers, either in spring or autumn; cuttings of young shoots, when the base close to the older wood is getting firm, inserted in silver sand, and placed, at first, in a cold frame, and afterwards in a little bottom-heat; sandy peat is the best; sandy, fibry loam and clayey loam the next; kitchen-garden soil, and soil of any kind containing or resting upon calcareous matter, the worst. The varieties of the *arbo'reum*, *campanulatum*, &c., require a little protection to have them in their beauty.

STOVE EVERGREEN SHRUBS.

- R. Brookeanum* (Rajah Brooke's). Reddish-salmon. November. Borneo. 1848.
- *Championæ* (Mrs. Champion's). 7. Pink. April. Hong-Kong. 1851.
- *gracile* (slender). 6. Bright red. Borneo. 1848.
- *Javanicum* (Javanese). 4. Orange, red. All seasons. Java. 1847.
- *longistolum* (long-flowered). 8. Crimson. Borneo. 1848.
- *Nilagiricum* (Neilgherry). Rose, white. May. Nepaul. 1840.
- *retusum* (blunt-leaved). 1½. Scarlet. May. Sumatra. 1818.
- *verticillatum* (whorl-leaved). Reddish. Borneo. 1848.

HALF-HARDY EVERGREEN SHRUBS.

- R. anthopogon* (bearded-flowered). 2. Purple. May. Nepaul. 1820.
 - *arbo'reum* (tree). 20. Scarlet. May. Nepaul. 1820.
 - *barbatum* (bearded). Red. April. Nepaul. 1837.
 - *cinnamomicum* (cinnamon). 20. Purple. June. Nepaul. 1820.
 - *ni'veum* (snowy-white). 20. White. March. Nepaul. 1817.
 - *Paxtonii* (Mr. Paxton's). Crimson. May. Khooseea. 1837.
 - *Rollissonii* (Mr. Rollisson's). Crimson. May. Nepaul. 1837.
 - *roseum* (rosy). 20. Rose. April. Nepaul.
 - *sanguineum* (blood-coloured). 20. Scarlet. April. Nepaul. 1817.
 - *campanulatum* (bell-flowered). 4. Pale pink. May. Nepaul. 1825.
 - *cinnabarinum* (cinnabar-flowered).
 - *citrinum* (citron-flowered). Lemon. May. Java. 1854.
 - *Dalhousiæ* (Lady Dalhousie's). 7. Yellowish-white. March. Sikkim. 1850.
 - *Gibsonii* (Gibson's). 5. White. May. Khooseea. 1837. Deciduous.
 - *glaucum* (milky-green-leaved). 1. Pink. March. Sikkim, Himalaya. 1850.
 - *Lapponicum* (Lapland). ½. Crimson. April. Lapland. 1825.
 - *lepidotum* (scaly). ½. Rose. Nepaul. 1829.
 - *Maddenii* (Major Madden's). 7. Blush. May. Himalaya.
 - *Metternichii* (Metternich's). Purple. May. Japan.
 - *ni'veum* (snowy-leaved). Lilac. May. Sikkim, Himalaya. 1850.
 - *setosum* (bristly). 1. Purple. Nepaul. 1825.
- HARDY EVERGREEN SHRUBS.
- R. albistolum* (white-flowered). 2. White. June. N. Amer. 1835.

- R. barbatum* (bearded-petioled). 3. Nepaul. 1829.
- *Californicum* (Californian). Pink. June. California.
- *Camtschaticum* (Kamtschatka). Purple. Kamtschatka. 1802.
- *Catawhiense* (Catawba). 4. Purple. July. N. Amer. 1809.
- *Catesbæi* (Catesby's). 4. Purple. May. N. Amer. 1810.
- *Caucasicum* (Caucasian). 1. Purple. August. Caucasus. 1803.
- *stramineum* (straw-coloured). 2. Straw. April.
- *chamaecistus* (ground-cistus). ½. Pale purple. May. Austria. 1786.
- *chrysanthum* (yellow-flowered). ½. Yellow. June. Siberia. 1796.
- *ciliatum* (fringed). Rose, white. March. Sikkim, Himalaya.
- *Dauricum* (Daurian). 3. Purple. March. Siberia. 1780.
- *atro-virens* (dark green). 3. Purple. March. Siberia.
- *Farreri* (Mrs. Farrer's). 3. Lilac. March. China. 1829.
- *ferrugineum* (rusty-leaved). 1½. Scarlet. June. Switzerland. 1752.
- *album* (white). 1. White. June. Pyrenees. 1830.
- *hybridum* (Herbert's-hybrid). Pink. July.
- *hirsutum* (hairy-leaved). 1½. Scarlet. June. Switzerland. 1656.
- *variegatum* (variegated-leaved). 1. Scarlet. June. 1800.
- *flavum* (yellow). Yellowish. All seasons. Java. 1847.
- *maximum* (largest). 20. Pink. July. N. Amer. 1756.
- *album* (white). 15. White. July.
- *Ponticum* (Pontic). 12. Purple. May. Gibraltar. 1763.
- *myrtifolium* (myrtle-leaved). 12. Purple. May. Gibraltar. 1763.
- *obtusum* (blunt-leaved). 4. Purple. May. Armenia.
- *odoratum* (sweet-scented). 3. Pink. July. 1820.
- *punctatum* (dotted-leaved). 4. Pink. July. N. Amer. 1786.
- *majus* (larger). 6. Pink. July.
- *purpureum* (purple). 25. Purple. July. N. Amer.
- *Purshii* (Pursh's). White. July. Jersey. 1811.
- *rhodora* (red-flowered). Red, purple. May. N. Amer. 1767.

RHODOSTOMA. (From *rhodon*, a rose, and *stoma*, a mouth; the opening of the tube of corolla. Nat. ord., *Cinchonads* [Cinchonaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Gardenia*.)

Stove evergreen shrubs. Cuttings of the young shoots in sand, under a bell-glass, and in bottom-heat; sandy, fibry loam and fibry peat. Winter temp., 48° to 60°; summer, 60° to 85°.

R. Gardenoides (Gardenia-like). White. April. 1845.

RHOPALA. See **ROPA'LA**.

RHUBARB. *Rheum rhaponticum*, *R. hybridum*, *R. undulatum*, and *R. palmatum*. Varieties.—There are several varieties, of which the most preferable are the

Tobolsk, Gigantic, Victoria (best), and Bucks, or Elford.

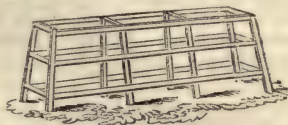
The Soil best suited to it is light, rich, deep, unshaded, and moderately moist.

Sowing.—It may be propagated by cuttings, but usually by seed. Sow soon after it is ripe, in September or October, in drills three feet apart, and an inch deep, the plants to remain where raised; for although they will bear removing, yet it always checks and somewhat lessens their growth. When they make their appearance in the spring, thin to six or eight inches asunder, and let the surface of the ground about them be loosened with the hoe. At the close of summer, when it can be determined which are the strongest plants, finally thin to four feet, or the Gigantic and Victoria to six. Break down the flower-stems as often as they are produced. In autumn remove the decayed leaves, and point in a little well-putrefied stable-dung, and earth up the stools. In the spring, hoe the bed, and as the stalks when blanched are much more delicate in taste, require less sugar to be rendered palatable, and are greatly improved in appearance, dig a trench between the rows, and the earth from it place about a foot thick over the stool. This covering must be removed when the cutting ceases, and the plants allowed to grow at liberty. As the earth in wet seasons is apt to induce decay, the covering may be advantageously formed of coal-ashes or drift-sand. Chimney-pots and butter-firkins make good coverings for blanching.

To obtain Seed.—Two-year-old plants often produce seed, but in their third year always. It must be gathered as soon as ripe, and great care taken that none is scattered over the beds, for the plants thence produced often spring up, and greatly injure the old plants by growing unobserved amongst them.

Forcing.—Plant a single row three feet apart in ground that has been trenched two spades deep, and dressed with well-putrefied dung at the time. The forcing may commence in December; first cover either with sea-kale or common garden-pots (twelves), but chimney-pots are still better, the leaf-stalks becoming much longer and finer, and envelope them with fermenting dung. A frame is much less objectionable, formed by driving stakes into the ground on each side of the bed, alternating with the plants. These are to

be three feet high above ground, and the space between the two rows of stakes two feet at the bottom, but approaching each other, and fastened by cross pieces, so as to be only fifteen inches apart at top. To the sides and top stout lathes are fixed, as in the accompanying sketch, to prevent the dung falling upon the plants.



The dung may be either fresh, or that which has already undergone fermentation, placed all round the frame eighteen inches thick, and the top covered with long litter. The temperature in the interior should have a range from 55° to 60°. If it rises higher, two or three large holes made through the top soon correct it.

Rhubarb may be forced without either pots or frame, by merely covering the plants six inches deep with light litter, care being taken that the plants are not injured.

Mr. Knight's mode of forcing is to place in the winter as many plants as necessary in large, deep pots, each pot receiving as many as it can contain, and the interstices entirely filled up by fine, sandy loam, washed in. The tops of the roots are placed on a level with each other, and about an inch below the surface. These being covered with inverted pots of the same size, may be placed in a vinery or hotbed, and on the approach of spring, any time after January, any room or cellar will be sufficiently warm. If copiously supplied with water, the plants vegetate rapidly and vigorously, and each pot will produce three successive cuttings, the first two being the most plentiful. As soon as the third is gathered, the roots may be changed, and those removed replanted in the ground, when they will attain sufficient strength to be forced again in a year's time. If not, it is of little consequence, for year-old roots raised from cuttings, or even seed sown in autumn, are sufficiently strong for use.

Propagation by Division.—Mr. Rogers, a successful cultivator, says, that when the rhubarb is propagated by the root, care must be taken to retain a bud on

the crown of each offset, together with a small portion of the root itself, with, if possible, some fibres attached to it. These offsets may be taken from roots of three or four years old without injury to the plant. They may be planted where they are intended to remain, at the same distance and in the same manner as advised for the seedlings.

RHU'S. Sumach. (From *rhudd*, red; colour of the fruit. Nat. ord., *Anacardiaceæ*. Linn., 5-*Pentandria* 3-*Trigynia*.)

Hardy deciduous trees and shrubs. By seeds, layers, and cuttings of roots and shoots; light, fibry loam. We have omitted all the greenhouse and stove species except *Japa'nica*, which requires a greenhouse.

- R. amela* (amela). 40. Nepaul. 1823.
 — *aromatica* (aromatic). 8. Yellow. May. N. Amer. 1773.
 — *copaliti'na* (gum-copal). 6. Green, yellow. August. N. Amer. 1682.
 — — *leucantha* (white-flowered). 4. Whitish. August. N. Amer.
 — *coriaria* (coriaria-leaved). 10. Green, yellow. July. S. Amer. 1640.
 — *coltinus* (wild-olive). 6. Pale purple. June. South Europe. 1656.
 — *diversifolia* (various-leaved). Greenish-white. June. California.
 — *diversiloba* (various-lobed). 6. White. June. California. 1843.
 — *e'legans* (elegant). 10. Red. July. N. Amer. 1726.
 — *glabra* (smooth). 8. Green, yellow. August. N. Amer. 1726.
 — — *coccinea* (scarlet). 10. Red. June. N. Amer.
 — — *divi'ca* (diaceous). 8. Greenish. July. N. Amer.
 — *Japa'nica* (Javanese). 10. White. August. Java. 1799.
 — *oxyantha* (hawthorn-like). 6. Green, yellow. Barbary. 1823.
 — *pu'mila* (dwarf. Poisonous). 1. Green, yellow. July. N. Amer. 1806.
 — *radicans* (rooting). 3. Green, yellow. June. N. Amer. Creeper.
 — — *microcar'pa* (small-fruited). 2. Green, yellow. June. N. Amer. Climber.
 — — *vul'bilis* (twinning). 2. Green, yellow. June. N. Amer. Climber.
 — *vulgaris* (common). Green, yellow. June. N. Amer. Creeper.
 — *suave'olens* (sweet-smelling). 6. Greenish-yellow. May. N. Amer.
 — *typh'na* (fever). 20. Green, yellow. July. N. Amer. 1629.
 — — *arborescens* (tree-like). 25. Green, yellow. July.
 — — *frutescens* (shrubby). 6. Green, yellow. July.
 — *undulatu* (waved-leaved). 5. Whitish-yellow. Cape of Good Hope. 1816.
 — *ve'nix* (varnish). 15. Green, yellow. July. N. Amer. 1713.
 — *vernici'fera* (varnish-bearing). 10. Green, yellow. Nepaul. 1823.

RHYNCOGLO'SSUM. (From *rhynchos*, a beak, and *glossa*, a tongue; form of the

lip of the flower. Nat. ord., *Gesnerworts* [*Gesneraceæ*]. Linn., 2-*Dianthia* 1-*Monogynia*. Allied to *Didymocarpus*.)

Greenhouse biennial. Seeds in hotbed, in spring, and, after being potted off, flowered in the plant stove or greenhouse; peat and loam, with a little silver sand and leaf-mould.

R. Zeyla'nicum (Ceylon). 1. Blue. July. Ceylon. 1844.

RHYNCOSEP'EMUM. (From *rhynchos*, a beak, and *sperma*, a seed. Nat. ord., *Doghanes* [*Apocynaceæ*]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Apocynum*.)

An evergreen climber, requiring greenhouse treatment, to be grown in loam and peat, and to be propagated by cuttings under a bell-glass, in sand.

R. jasminoi'des (jasmine-like). 3. White. July. Shanghai. 1846.

RHYTIDOPHY'LLUM. (From *rhytis*, a wrinkle, and *phyllon*, a leaf. Nat. ord., *Gesnerworts* [*Gesneraceæ*]. Linn., 14-*Didymia* 2-*Angiospermia*. Allied to *Gloxinia*.)

For culture, see *GESNEREA*.

R. auriculatum (eared). Red, yellow. August. Brazil. 1834.

RIBBON GRASS. *Aru'ndo*.

RIBES. Currant. (From the Arabic name of a plant. Nat. ord., *Currantworts* [*Grossulariaceæ*]. Linn., 5-*Pentandria* 1-*Monogynia*.)

Hardy deciduous shrubs, except *punctatum*, which requires shelter. Nearly all bloom in April. Seeds, chiefly, for fresh varieties; cuttings of ripened shoots in spring or autumn, in the open ground; good garden-soil. See *CURRENT* and *GOOSEBERRY*.

R. acinua're (needle-spined). White. Siberia.
 — *acuminatum* (pointed-leaved). 5. Greenish-yellow. Nepaul. 1837.

— *albino'rotum* (white-nerved). 4. Green. N. Amer.

— *alpinum* (alpine). 3. Green. Britain.

— *bucco'ferum* (berry-bearing). 3. Green. Britain.

— *foliis-variegatis* (variegated-leaved). 4. Green. May. Britain.

— *pu'milum* (dwarf). 2. Green.

— *sterile* (barren). 3. Green. Britain.

— *atro-purpureum* (dark purple). 4. Purple. Siberia. 1826.

— *au'reum* (golden). 8. Yellow. May. Missouri. 1812.

— *pra'cox* (early). 8. Yellow. N. Amer. 1812.

— *serotinum* (late). 8. Yellow. June. N. Amer. 1812.

— *villo'sum* (shaggy-leaved). 8. Yellow. N. Amer. 1812.

— *Carpathicum* (Carpathian). 4. Green. Carpathia. 1818.

— *ce'reum* (waxy-leaved). 2. White. N. Amer. 1827.

— *cyno'sbati* (dog-bramble). 4. Green. Canada. 1759.

— *fructu-aculeato* (prickly-fruited). 4. Purplish. Lake Huron.

- R. cyno'shahi fructu-glabro* (smooth-fruited). 4. Whitish. Hudson's Bay.
 — *diacantha* (twin-prickled). 4. Green, yellow. May. Siberia. 1781.
 — *divaricatum* (straggling). 7. White, red. N. Amer. 1826.
 — *flavum* (yellow). 6. Yellow. N. Amer. 1812.
 — *foetidum* (froid). 4. Yellow. N. Amer. 1799.
 — *grandiflorum* (large-flowered). 4. Yellow. N. Amer.
 — *parviflorum* (small-flowered). 4. N. Amer.
 — *glaciale* (frozen). 4. Yellow. Nepaul. 1823.
 — *glandulosum* (glanded). 8. Green, yellow. Peru. 1820.
 — *Gordoni* (Gordon's). 6. Yellow, red.
 — *gracile* (slender). 4. Green, white. N. Amer. 1812.
 — *grossularia* (rough-gooseberry). 4. Green. England.
 — *Besseri* (Besser's). 4. White. Cracow.
 — *bracteata* (bracted). 4. Green, white.
 — *Himalayana* (Himalayan). 4. Green, white. March. Himalayas. 1838.
 — *macrocarpa* (large-berried). 4. Green, white.
 — *reclinata* (reclined). 4. Green, white. Germany. 1781.
 — *spinosissima* (most-spiny). 4. Green, white. Britain.
 — *subinermis* (few-prickled). 4. Green, white.
 — *uva-crispa* (smooth-berried). 4. Green, white. Britain.
 — *heterotrichum* (variable-haired). 2. Purple. Altai. 1837.
 — *Hudsonianum* (Hudson's Bay). 4. White. Hudson's Bay.
 — *lacustre* (lake). 4. Yellow, green. N. Amer. 1812.
 — *echinatum* (hedgehog). 1½. Greenish-yellow.
 — *macrocarpum* (large-spined). 4. Green. May.
 — *Menziesii* (Menzies'). 5. Red. May. California. 1830.
 — *microphyllum* (small-leaved). 5. Red. Mexico.
 — *multiflorum* (many-flowered). 5. Green. Hungary. 1822.
 — *niigrum* (black). 5. Green. Britain.
 — *baicalica* (green-berried). 5. Russia.
 — *foliis-variegatis* (variegated-leaved). 5. Britain.
 — *niivum* (snowy). 5. White. N. Amer. 1826.
 — *opulifolium* (quelder-rose-leaved). Russia.
 — *orientale* (eastern). 4. Green, yellow. May. Syria. 1824.
 — *osyranthoides* (hawthorn-like). 3. Green, white. N. Amer. 1769.
 — *petraeum* (rock). 4. Red. May. England.
 — *procumbens* (trailing). ½. Purple. May. Dahuria. 1804.
 — *prostratum* (prostrate). 1½. Yellow. May. N. Amer. 1812.
 — *lasiflorum* (loose-flowered). 4. Green, yellow. N. Amer. 1812.
 — *punctatum* (dotted-leaved). 3. Green, yellow. Chili. 1826. Half-hardy.
 — *resinosum* (resinous). 3. Yellow, green. N. Amer. 1800.
 — *rigens* (stiff). 6. Green. N. Amer. 1812.
 — *rubrum* (red). 4. Green. Britain.
 — *album* (white). 4. Green. Britain.
 — *carneum* (flesh-coloured-berried). 4. Green. Britain.
 — *foliis albo* (leaves white). 4. Green.
 — *foliis luteo* (leaves yellow). 4. Green.
 — *hortense* (garden). 4. Green. Britain.
 — *Sibiricum* (Siberian. Russian Currant). 6. Greenish-yellow. Russia.

- R. rubrum sylvestre* (wood). 4. Green. Britain.
 — *variegatum* (striped-berried). 4. Green. Austria.
 — *sanguineum* (bloody). 6. Blood. N. Amer. 1826.
 — *atro-rubens* (dark red). 6. Dark red. N. Amer.
 — *glutinosum* (clammy). 6. Pale pink. N. Amer.
 — *malvaceum* (mallow-like). 6. Dark pink. N. Amer.
 — *saxatile* (rock). 4. Green. May. Siberia. 1819.
 — *setosum* (bristly). 4. Green, white. N. Amer. 1810.
 — *speciosum* (showy). 4. Crimson. May. California. 1829.
 — *spicatum* (spiked-flowered). 4. Green. England.
 — *tenuiflorum* (slender-flowered). 6. Yellow. N. Amer. 1812.
 — *fructu-luteo* (yellow-berried). 6. Yellow.
 — *fructu-nigro* (blackish-berried). 6. Yellow.
 — *trifidum* (three-cleft-calyx). Quebec. 1824.
 — *triste* (sad-coloured-flowered). 3. Siberia. 1820.
 — *viscosissimum* (very clammy). 4. Yellow. N. Amer. 1820.

RICK PAPER is prepared from *Aralia papyrifera*.

RICHARDIA. (Named after L. O. Richard, a French botanist. Nat. ord., *Arads* [Aradaceæ]. Linn., 7-*Heptandria* 1-*Monogynia*.)

Better known as *Callia Æthiopica*, or the Arum-plant. Greenhouse herbaceous perennial. Suckers and division of the plant in spring; rich, fibry loam. Winter temp., 35° to 45°; should be kept dryish for a time before growing, so as to get it to throw up its flowers. Thrives well in a cistern in a greenhouse where there is abundance of light, and in a stream of water during the summer, the pots being plunged within it.

R. Æthiopica (Ethiopian). 8. Creamy. March. Cape of Good Hope. 1731.

RICHARDSONIA. (Named after R. Richardson, an English botanist. Nat. ord., *Cinchonads* [Cinchonaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*.)

Stove evergreen. Cuttings of young shoots in sandy soil, and in a moist bottom-heat; fibry loam and peat, and a little sand and leaf-mould. Winter temp., 45° to 55°; summer, 60° to 80°.

R. scabra (rough). 2. White. September. Brazil. 1814.

RICHIEA. (Named after Mr. Richie, an African traveller. Nat. ord., *Epacrids* [Epacridaceæ]. Linn., 13-*Polyandria* 1-*Monogynia*.)

Stove evergreen climber. Cuttings of half-ripened shoots in sand, under a bell-glass, and in a mild, sweet bottom-heat; sandy, fibry peat, with a few nodules of fibry loam and charcoal. Winter temp., 55° to 60°; summer, 60° to 85°.

R. fragrans (fragrant). 6. White. June. Sierra Leone. 1795.

RICINUS. Palma Christi. (From *ricinus*, a tick; resemblance in the seeds. Nat. ord., *Spurge-worts* [Euphorbiaceæ]. Linn., 21-*Monœcia* 1-*Monandria*.)

Annuals by seeds in a hotbed; shrubs by cut-

tings in a hotbed; light, rich soil. The shrubby kinds should have the addition of a little peat. They are all too tender to do much good out of doors. The following are all half-hardy annuals, except *li'vidus* and *ru'tilans* :—

- R. communis* (common. Castor-oil Plant). 6. Green. July. E. Ind. 1548.
- *inermis* (unarmed-capsuled). 6. Purple. India. 1758.
- *Kra'ppa* (Krappa). White. August. 1827.
- *leucocarpus* (white-capsuled). White. August. 1827.
- *li'vidus* (livid-leaved). 8. Purple. July. Cape of Good Hope. 1795. Greenhouse evergreen.
- *macrophyllus* (large-leaved). White, red. August. 1827.
- *ru'tilans* (red-stalked). Reddish-white. August. 1827. Half-hardy biennial.
- *undulatus* (wavy-leaved). Red, white. August. 1827.

RICO'TIA. (Probably a commemorative name. Nat. ord., *Crucifers* [Brassicaceæ]. Linn., 15-*Tetradynamia*.)

Hardy annual. Seeds; light, sandy soil. Good for belts, knolls, or rock-works.

R. luna'ria (moonwort-like). Lilac, purple. June. Egypt. 1757.

RIDDLING. Another name for sifting.

RIDGING is digging the soil into parallel ridges in this form, so as to expose it thoroughly to the action either of the atmosphere or of frost.

RIDGING-OUT. Planting out Cucumbers and Pumpkins in the open-ground beds. Ridging, however, should not be confined to the winter, for in summer the extra exposure to the air and heat is highly promotive of vegetation: it impregnates the soil with oxygen, promotes the decay of stubborn vegetable remains, and disturbs predatory vermin. Mr. Barnes says, "I keep all ground, as soon as a crop is done with, well trenched, burying all the refuse I possibly can in a green state, casting the earth into rough ridges, tumbling those ridges over with a strong fork on frosty mornings in winter and spring, and during hot sunny days in summer, continually changing the crops; keeping the hoe at work at all seasons in suitable weather, forking up all odd corners and spare ground without loss of time. By this management, I find the ground is always in good condition and never tired by cropping, some judgment only being exercised in applying such properties again to the soil that have been taken from it, or that are likely to be required by the succeeding crop."

The most effectual mode of ridging is thus described by Mr. Parkins :—

Let *a*, *b*, *c*, *d*, represent a section of the

ground to be trenched two feet deep. In the first place the ground is measured



out in longitudinal beds four feet wide; this done, the top spit of the bed *c* is laid on the bed *g*, and the second spit of the bed *c* is laid on *h*. The first or top spit of the bed *f* is then laid on *h*, so that the top soil and subsoil are kept on separate and alternate beds, and may be mixed, reversed, or returned as taken out, at the will of the operator. By this method the advantages are—much greater exposure of surface to the action of the weather; the opportunity of incorporating with the soil any desirable or obtainable manures, and at any desired depth; a thorough blending of the soil to the depth of two or three feet; and it also facilitates the operation of draining where necessary. It is needless to add, that when the first thrown-out beds are sufficiently pulverised, they are levelled down, and others thrown out in the same manner; *g*, *h*, *i*, represent the ridges thrown out and left as rough as possible.

RIGIDE'LIA. (From *rigidus*, stiff; the stiffness of the flower-stalk. Nat. ord., *Irids* [Iridaceæ]. Linn., 3-*Triandria* 1-*Monogynia*. Allied to *Tigridia*.)

Half-hardy bulbs. Offsets in spring; also by seeds in a hotbed; rich, sandy loam and peat; bulbs require to be kept from frost and damp during the winter.

R. fla'mmea (flame-coloured). 5. May. Mexico. 1839.

— *immacula'ta* (unspotted). 1. Crimson. June. Guatemala. 1839.

— *ortha'ntha* (straight-flowered). 1½. Crimson. June. Mexico. 1846.

RINGING is cutting away a belt of bark quite down to the wood entirely round a branch. This checks the return of the sap, and aids to make that branch more fruitful, and the fruit on it finer. We have seen it done with the best effect upon the pear and grape-vine. It should be done just previously to the blossoms opening. When first suggested it was called the *Ring of Pomona*. See **LIGATURES**.

RIPENING WOOD is one of the principal objects to be aimed at for the production of either flowers or fruit the following year. To effect this, at the end of August, or early in September, superfluous

branches should be removed, and shoots stopped, to concentrate the sap, and expose those retained to the full influence of the sun.

RIPO'GONUM. (From *ripos*, flexible, and *gonos*, a shoot. Nat. ord., *Sarsaparillas* [Smilacaceæ]. Linn., 6-*Hexandria* 1-*Monogynia*.)

Greenhouse, white-flowered, evergreen climbers, from New Holland. Cuttings of side-shoots, when three inches in length, taken off close to the stem, in sand, under a bell-glass, in May; fibry loam, a little peat, sand, and charcoal, and well-drained. Winter temp., 40° to 48°.

R. album (white). 3. June. 1820.

— *parviflorum* (small-flowered). 2. June. 1820.

RI'VEA. (Named after *A. de la Rive*, a Genevan botanist. Nat. ord., *Bindweeds* [Convolvulaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Ipomœa*.)

Stove evergreen twiner. Cuttings of side-shoots, and of the young shoots, several inches in length, as they rise from the roots in spring; or grafting on a free-growing *Ipomœa*; fibry loam and rough, sandy peat. Winter temp., 55° to 60°; summer, 60° to 85°.

R. tiliaefolia (lime-leaved). White. June. E. Ind. 1812.

RIVI'NA. (Named after *A. Q. Rivinus*, a German botanist. Nat. ord., *Phytolacads* [Phytolacaceæ]. Linn., 4-*Tetrandria* 1-*Monogynia*.)

Called *rouge plants* in the West Indies, where the fruit is used as a cosmetic. Stove evergreens. Seeds and cuttings. The flowers are of little beauty; but the racemes of ripe and ripening fruit are very interesting; light soil. Winter temp., 50° to 60°; summer, 60° to 80°.

R. Braziliensis (Brazilian). 2. Green. June. Brazil. 1790.

— *humilis* (lowly). 2. White. June. W. Ind. 1699.

— *cane-scens* (hoary). 2. White. June. W. Ind. 1804.

— *la'vis* (smooth). 2. Pink. May. W. Ind. 1733.

— *lanceolata* (spear-head-leaved). 3. June. Brazil. 1815.

— *latifolia* (broad-leaved). Purple. July. Madagascar. 1826.

— *octandra* (eight-stamened). 2. White. May. W. Ind. 1752.

— *purpurea-scens* (purplish). 2. Pink. June. W. Ind. 1815.

— *tinctoria* (dyeing). 4. White. May. Caraccas. 1830.

ROAN-TREE. *Py'rus aucuparia*.

ROBE'RGIA. Should be added to **CON'ARUS**, which see.

R. frutescens (shrubby). 6. White. Guiana. 1823.

ROBI'NIA. (Named after *J. Robin*, a French botanist. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 17-*Diadelphia* 4-*Decandria*. Cobbett's Locust-tree is *Robi'nia pseu'do-aca'cia*.)

Deciduous, white-flowered trees, from North America, where not otherwise stated. For tender kinds, cuttings of young wood in sand, under a

glass. The *Locust-tree*, in all its varieties, by seed sown in autumn, or preserved in the pods, and sown in the spring; by cuttings of the shoots; by cuttings of the roots; by suckers and layers. The finer varieties are generally grafted. The *hi'spida ro'sea*, or *Rose Acacia*, is a fine object grafted on the *pseu'do-aca'cia* standard high, in a sheltered place not much north of London. The finer varieties of *hi'spida ro'sea*, in cold situations, deserve a place on a conservative wall, and would be a nice companion to the *Gly'cine Sine'nsis*, &c.

R. Davu'rica (Dahurian). 30. May. Davuria. 1820.

— *du'bia* (doubtful). 30. White, red. May.

— *Guinee'nsis* (Guinea). 6. Guinea. 1822. Stove evergreen.

— *hi'spida* (bristly. *Rose Acacia*). 10. Pink. July. 1743.

— *macrophy'lla* (large-leafted). 10. Red. May.

— *na'na* (dwarf). 1. Pink. June. Carolina.

— *ro'sea* (upright. *Rose*). 10. Red. July.

— *pseu'do-aca'ciu* (common. Bastard *Acacia*). 40. May. 1640.

— *amorphafolia* (amorphaleaved). 3. White, red. May.

— *cri'spa* (curled). 40. June.

— *fo're-lu'teo* (yellow-flowered). 40. Yellow. May.

— *inermis* (unarmed). 40. May.

— *latislitiqua* (broad-podded). 30. May.

— *macrophy'lla* (large-leafted). 30. May.

— *microphy'lla* (small-leafted). 30. May.

— *monstro'sa* (monstrous). 30. White, red. May.

— *pendula* (drooping). 30. Pink. May.

— *pro'cera* (tall). 30. White, red. May.

— *sophorafolia* (sophora-leaved). 30. White, red. May.

— *spectabilis* (showy). 30. May. France.

— *stri'cta* (upright). 30. White, red. May.

— *tortuo'sa* (twisted). 40. May.

— *umbraculi'fera* (umbrella-bearing). 40. May.

— *purpu'rea* (purple). 15. Purple. July. 1810.

— *visco'sa* (clammy). 30. Purple. July. 1797.

ROCAMBOLE (*A'llium scorodo'prasum*), sometimes called *Spanish Garlic*, has its bulbs or cloves growing in a cluster. The stem bears many bulbs at its summit, which, as well as those of the root, are much milder than Garlic.

It is best propagated by the root bulbs, those of the stem being slower in production. Plant either in February, March, or early in April, as well as throughout the autumn, in drills, or by the dibble, in rows six inches apart each way, and usually two inches within the ground, though the plants would thrive better if grown on the surface, as recommended for the *Eschallot*. In other respects they are cultivated as directed for Garlic. A very small bed is sufficient for the supply of the largest family.

RO'CHEA. (Named after *La Roche*, a botanical author. Nat. ord., *Houseleeks* [Crassulaceæ]. Linn., 5-*Pentandria* 5-*Pentagynia*. Allied to *Crassula*.)

Greenhouse evergreen succulents, from the Cape of Good Hope. For culture, see *CRA'SSULA*.

- R. albiflora* (white-flowered). White. July. 1800.
- *bicolor* (two-coloured). 1. Yellow, scarlet. June. 1810.
- *biconvexa* (doubly-convex). $\frac{1}{2}$. White. July. 1823.
- *capitata* (headed). White. July. 1822.
- *coccinea* (scarlet). 1. Scarlet. July. 1710.
- — *fulva-alba* (white-flowering). 1. White. July. 1811.
- *cymosa* (cymed). $\frac{1}{2}$. Red. August. 1800.
- *fulcata* (sickle-leaned). 3. Scarlet. July. 1795.
- *flava* (yellow). Yellow. June. 1802.
- *jasminea* (jasmine-like). $\frac{1}{2}$. White. April. 1815.
- *media* (mediate). 1. Red. June. 1810.
- *perfoliata* (leaf-stem-pierced). 4. Scarlet. July. 1700.
- — *albiflora* (white-flowering). 4. White. July. 1800.
- *odoratissima* (sweetest-scented). 1. Pink. June. 1793.
- *versicolor* (changeable-coloured). 2. White. May. 1817.

ROCKET. *He'speris*.

ROCKET LARKSPUR. *Delphinium ajacis*.

ROCK LYCHNIS. *Viscaria*.

ROCK ROSE. *Cistus*.

ROCK-WORK is one of the most difficult things to construct tastefully. If the body of the rock is intended to be raised much above the ground level, a quantity of soil and rubbish should be carried into the centre of the space. This soil, besides serving to support the rock-work, will also form a border for the plants to grow in. Having at hand plenty of large, rough stones, broken bricks, or stony rubbish of any kind or colour, proceed with these to imitate the form of natural rock as nearly as possible. Rough, bold, angular projections, and deeply-formed chasms, are the principal features in natural scenery which please us most. A rock, with a flat unbroken surface, whether horizontal or perpendicular, presents too much sameness to be pleasing to the eye; therefore, in imitating nature, the projections should be varied and bold, and unless raggedness and intricacy form principal features in its composition, it will lose much of its effect. If the rock-work be on a large scale, it should not be one continued line, but broken at intervals, in one part lost beneath the surface of the earth, and again rising in another part and resuming its sinuous form.

So far there is little difference between this and the common method of making artificial rock. When, however, every stone has been arranged to suit the eye, the interstices between them are to be filled up with any kind of rough mortar. Of course, fissures, and similar places in-

tended for the plants which are to cover the rock, must be left open, so that the roots may penetrate to the soil beneath the stones. The next operation is to daub the whole mass over with Roman cement. For this purpose the latter should be mixed with water until it is of the consistence of thick paint, in which state it may be applied to the stones with a large painter's brush. The spaces between the stones having been filled with rough mortar prevents the cement from being wasted. The thickness of the latter on the stones need not be more than the eighth of an inch: it will unite the whole into one mass; and rock-work thus constructed is, beyond all comparison, far more natural than that made in the usual way. It has none of that disjointed appearance which usually accompanies rock-work made without cement. After a few months' exposure to the weather, rock-work thus formed (if skilfully made) cannot, without careful examination, be distinguished from a natural mass; it will soon cover all but the most prominent parts. If the cement be of a colour too light, which, for some situations may be the case, a little lamp-black or soot may be mixed with it. Care must, however, be taken that no substance which may make the cement more porous is used, otherwise it will peel from the stones after a hard frost. For the benefit of those who are not accustomed to using cement, we may mention that no more should be moistened at once than can be used in a short time. If the cement be good it will quickly harden, and will then be in a manner useless.

In making artificial rock for waterfalls, or other constructions, where the cement may be constantly exposed to the action of the water, the best water-cement should be used. Any preparation that does not quickly indurate under water will, in a short time, be washed away, and leave nothing but the bare stones.—*Wateley*.

RODRIGUEZIA. (Named after *E. Rodriguez*, a Spanish botanist. Nat. ord., *Orchids* [*Orchidaceae*]. Linn., 20-*Gynandria* 1-*Monandria*.)

Stove Brazilian orchids, cultivated in baskets. See ORCHIDS.

- R. Barkeri* (Barker's). 1. Green. January.
- *crispata* (curled). Green.
- *lanceolata* (spear-head-leaned). Yellow. March. Trinidad. 1821.
- *laxiflora* (loose-flowered). $\frac{1}{2}$. Pale green.

- R. planifolia* (flat-leaved).
— recurva (curled-back). 3. Yellow. June. 1824.
— secunda (side-flowering). 2. Red. July. Trinidad. 1820.
— stenochila (narrow-lipped). Yellow, red. July. Venezuela.
— suaveolens (sweet-scented). Yellow. February. 1825.

ROEDUCK BERRY. *Rubus chamæmoris*.
 ROE'LLA. (Named after C. Roelle, a Dutch botanist. Nat. ord. *Bellworts* [*Campanulacæ*]. Linn., 5 *Pentandria* 1 *Monogynia*.)

Greenhouse plants, and all but one from the Cape of Good Hope. *Decurrens* from seed in a gentle hotbed, in spring, planted out in early summer; *muscosa* by division; the rest, being evergreen shrubs, by cuttings of the points of the shoots in sand, under a bell-glass; sandy peat and fibry loam. Winter temp., 40° to 48°.

- R. cilialta* (hair-fringed). 1. White, purple. July. 1774.
— decurrens (decurent). 1. Blue. August. 1787. Annual.
— elegans (elegant). 3. Purple. February. 1836.
— fruticulosa (small-shrubby). Yellow. July. N. Holland. 1820.
— muscosa (mossy). 4. Blue. August. 1802. Herbaceous.
— pedunculata (long-flower-stalked). Blue. June. 1827.
— squarrosa (spreading). 3. White. July. 1787.
— Bergii (Berg's). Blue. August. 1816.
— spicata (spiked). White. August. 1821.

ROLLER. This is best made of cast-iron, and may be had of four different sizes, viz., with a diameter of sixteen, eighteen, twenty-two, or twenty-four inches. The roller is best used the day after a fall of rain.

ROME'RIA. Named after J. Y. Romer, a German botanist. Nat. ord., *Poppyworts* [*Papaveracæ*]. Linn., 13-*Polyandria* 1-*Monogynia*. Allied to *Glancium*.)

Hardy annuals. Seeds in the open border, in March or April.

- R. hybrida* (hybrid). 2. Purple. May. Britain.
— refracta (refracted). 1. Violet. June. Tauria. 1823.
— vermiculata (worm-like). Red. June. Persia. 1829.

RONDELETIA. (Named after W. Rondelet, a Frenchman. Nat. ord., *Cinchonads* [*Cinchonacæ*]. Linn., 5-*Pentandria* 1-*Monogynia*.)

Stove evergreen shrubs. Cuttings of the points of the shoots, getting slightly firm, in sand, under a bell-glass, and in bottom-heat; the glass being raised at night, and in dull weather, to prevent damping; fibry peat and fibry loam, with enough of sand, broken pots, and charcoal to insure openness in the soil. Winter temp., 45° to 55°; summer, 60° to 85°.

- R. Americana* (American). 10. White. August. W. Ind. 1752.
— discolor (two-coloured). 6. Red. New Grenada.
— hirsuta (hairy). 5. Yellow. July. Jamaica 1820.

- R. hirta* (hairy). 10. Pink. July. Jamaica. 1776.
— laevigata (smooth-leaved). 12. White. July. W. Ind. 1790.
— laurifolia (laurel-leaved). 5. White. July. Jamaica. 1824.
— longiflora (long-flowered). Blue. August. Brazil. 1842.
— odorata (scented). 3. Red. July. W. Ind. 1836.
— paniculata (panicled). 6. White. July. E. Ind. 1820.
— racemosa (racemed). 6. White. July. Jamaica. 1820.
— speciosa (showy). 1. Scarlet. April. Havannah. 1830.
— major (large-flowered). 3. Scarlet. April. Havannah.
— thyrsoides (thyrsed). 5. White. July. Jamaica. 1819.
— tomentosa (downy). 6. White. July. Jamaica. 1819.
— versicolor (changeable-coloured). 4. Pink. March. Veraguas. 1838.

ROOTS are either annual, biennial, or perennial; but in all roots, and under any mode of management, the fibrous parts (radiculae) are strictly annual; they decay as winter approaches, and are produced with the returning vigour of their parent in the spring. Hence the reason that plants are transplanted with most success during the season of their decay; for, as the root almost exclusively imbibes nourishment by the mouths of these fibres, in proportion as they are injured by the removal so is the plant deprived of the means of support: that sap which is employed in the formation of new fibres would have served to increase the size of other parts.

Roots always travel in the direction where most food is to be obtained; therefore, for carrots and parsnips, let a little manure be turned in with the bottom spit when the ground is trenched for them. So, if it be desirable to prevent the roots of any plant travelling in a certain direction, the soil on that side should be excavated, and the cavity refilled with sand, or some other unfertile earth, whilst the soil on those sides of the plant whither the roots are desired to tend should be made as fertile as is permissible with its habits.

Whatever causes an excessive development of root prevents the production of seed; and *vice versa*, the production of seed, especially in tuberous-rooted plants, reduces the amount of root developed. Thus, frequent transplanting the young plants of the lettuce, brocoli, and cauliflower causes the production of numerous fibrous roots, and is found effective in preventing the mature plants advancing early to seed.

The early varieties of the potato do not naturally produce seed; but if their tubers are removed as soon as they are formed, these early varieties blossom and bear seed as freely as the latter kinds, a fact suggesting many experiments to the cultivator of shy-blooming tuberous-rooted flowers. Again, if the blossoms of these later varieties are plucked off as they appear, the weight of tubers produced will be very materially increased.

ROOT-PRUNING, first adopted as a systematic practice by Mr. Errington, has for its object a check to over-luxuriance. This it does effectually, for such excess of growth arises from the roots imbibing too much food. By pruning, and thus reducing their number, therefore, we reduce their imbibing power; and it is found that such pruning checks the production of leaf-buds, and will cause any kind of fruit-tree to produce blossom-buds, provided the tree is healthy, and that its barrenness arises from over-luxuriance. To know what proportion of the roots to cut away, we may suppose the trees thrown into three classes. First, trees of moderate luxuriance; second, those which may be termed robust; third, those of gross habit. To give a further idea, we would say that the first class will make young shoots, on an average, a foot in length; those of the second two feet; and the third nearly, or quite, three feet: the latter, indeed, frequently burst into lateral or side-shoots from the young shoots of the same season.

From the first class, therefore, we advise the cutting away about a sixth part of the roots; from the second class a fourth part; and from the third class a third part. It must be borne in mind that the extremities of the roots alone should be cut off, for while we advocate this mutilation, we equally advocate the preservation of the surface roots by every possible means; nay, more than that, we recommend their encouragement by extra appliances of manure to the surface-soil.

ROPA'LA. (From *roupala*, the Guianan name. Nat. ord., *Proteads* [*Proteaceæ*]. Linn., 4-Tetrandria 1-Monogynia.)

Greenhouse evergreen shrubs, from Guiana. Cuttings of ripe shoots in sand, under a bell-glass, not hurried, but freed from damp, and placed in bottom-heat after a few weeks; fibry loam and sandy peat. Winter temp., 45° to 48°; a rather sheltered place in summer.

R. denta'ta (tooth-leaved). 10. Green. June. 1802.
— *me'dia* (mediate). 10. May. 1823.

R. monta'na (mountain). Yellow. April. 1828.
— *ni'tida* (shining). Pale yellow. 1821.
— *sessili'fo'lia* (stalkless-leaved). 10. Green. 1803.

RO'PERA. (Named after J. Roper, a German botanist. Nat. ord., *Beancapers* [*Zygophyllaceæ*]. Linn., 8-Octandria 1-Monogynia.)

Greenhouse, yellow-flowered, evergreen shrubs, from New Holland. Cuttings of the young shoots in sand, under a bell-glass, in spring; also seeds in a slight hotbed; sandy, fibry peat, fibry loam, and a little rough charcoal. Winter temp., 40° to 50°.

R. auranti'aca (orange). August. 1837.
— *fabagi'fo'lia* (fabago-leaved). June. 1822.
— *fruticu'lo'sa* (sub-shrubby). 3. July. 1820.

RO'SA. Rose. (From the Celtic *rhod*, red; prevailing colour. Nat. ord., *Rosce-worts* [*Rosaceæ*]. Linn., 12-Icosandria 1-Polygynia.)

For culture, see ROSZ.

R. acicula'ris (needle-prickled). 6. Blush. June. Siberia. 1805.
— *a'l'ba* (single-white). 4. White. June. South Europe. 1597.
— *alpi'na* (alpine). 5. Blush. June. South Europe. 1683.
— — *globu'sa* (globular-berried); *hellebo'r'ina* (hellebore-like); *hispide'lla* (slightly-bristly); *la'e'vis* (smooth); *lagena'ria* (flask-shaped-berried); *pilo'sula* (downy-flower-stalked); *pimpinelli'fo'lia* (pimpinella-leaved); *pyrifo'r'mis* (pear-shaped-berried); *seto'sa* (bristly-calyxed); *sorbi-ne'lla* (sorb-like); *turbina'ta* (top-shaped-berried).
— *anemone'fo'ra* (anemone-flowered). 8. Pale blush. June. China. 1846.
— *arve'nsis* (field. White-dog). 8. White. July. Britain.
— — *Anderso'nii* (Anderson's). Pale flesh. June. Britain.
— — *Ayrshi'rea* (Ayrshire). 20. White. August. Scotland.
— *Ba'nksia* (Lady Banks'). 20. White. June. China. 1807.
— — *lu'tea* (yellow). Pale buff. June. China. 1807.
— *Bo'r'reri* (Borrer's). 6. Pale red. June. Britain.
— *bracte'a'ta* (bracted. Macartney's). 2. White. July. China. 1795.
— — *scabri'scula* (rough-stemmed). 2. White. July. China.
— *bracte'scens* (small-bracted). 6. Pink. June. England.
— *Bruno'nii* (Brown's). 12. White. June. Ne-paul. 1823.
— *cæ'sia* (grey). 6. Pink, white. July. Scotland.
— *cani'na* (dog, or hip). 8. Pale red. June. Britain.
— — *aciphy'lla* (needle-leaved). 8. Pink. June. Britain.
— — *Ægypti'aca* (Egyptian). 8. Pink. June. Egypt.
— — *Borbonia'na* (Bourbon). 8. Purple. June. Bourbon.
— — *fastigia'ta* (pyramidal). France.
— — *glauce'scens* (milky-green). 8. June. France.
— — *Merat'ia* (Merat's). 8. France.
— — *microca'rpa* (small-fruited). France.
— — *ni'tens* (shining-leafteted). 8. June.
— — *nu'da* (naked). 6. Pink. June. Britain.
— — *obtusifo'lia* (blunt-leafteted). 8. June.

R. canina Schottia'na (Schott's). 8. June. Podolia.
 — *squarrosa* (spreading). Germany.
 — *surculosa* (spriggy). 4. Pink. June. Britain.
 — *Carolina* (Carolina). 6. Crimson. June. N. Amer. 1726.
 — *Caucasica* (Caucasian). 20. Red. June. Iberia. 1798.
 — *centifolia* (hundred-leaved. *Cabbage*). 3. Pink. June. Caucasus. 1596.
 — *cristata* (crested-calyxed). 3. Pink. June. France. 1833.
 — *muscosa* (mossy. *Common Moss*). 3. White, red. June.
 — *muscosa-cristata* (mossy-crested). White, red. June. France.
 — *pomponia* (pompon. *Provins*). 2. White, red. June.
 — *cinnamomea* (cinnamon). 6. Pink. May. Europe.
 — *Dahurica* (Dahurian). 6. Red. June. Dahuria. 1824.
 — *damasce'na* (damask). 3. Pink. June. Syria. 1573.
 — *Dicksoni* (Dickson's). White. June. Ireland.
 — *Donia* (Don's). 4. Pink. June. Scotland.
 — *horrida* (horrid-spined). 4. Pink. June.
 — *dumetorum* (thicket). 5. Pink. June. England.
 — *ferox* (ferce). 3. Red. July. Caucasus. 1596.
 — *nitens* (shining). 4. Pale crimson. July. 1822.
 — *Forsteri* (Forster's). 6. Pink. June. Britain.
 — *fraxinifolia* (ash-leaved). 6. Red. June. Newfoundland.
 — *frutetorum* (coppice). 6. Pink. June. Volhynia. 1818.
 — *Gallica* (French). 2. Pink. June. South Europe. 1596.
 — *Agatha* (Agatha). Purple.
 — *inaperta* (unopened. *Vilmorin Rose*). White, rose.
 — *incrimis* (unarmed). Purple.
 — *parvifolia* (small-leaved). 1. Purple. June. Europe.
 — *pu'nila* (dwarf. *Wild-shop*). 3. Red. June. Austria. 1810.
 — *glutinosus* (clammy. *Cretan*). 2. Pale bluish. June. Candia. 1821.
 — *gracilis* (slender). 8. Pale pink. June. Britain.
 — *grandiflora* (large-flowered). 4. White. May. Siberia. 1818.
 — *Hibernica* (Irish). 4. Blush. August. Ireland.
 — *Iberica* (Iberian). 6. Pink. June. Iberia. 1820.
 — *Indica* (Indian. *China*, or *Monthly*). 20. Red. China. 1789.
 — *caryophylla* (clove-scented).
 — *cruenta* (bloody).
 — *longifolia* (long-willow-leaved). 5. Pink. June. China.
 — *ni'nea* (white-double-flowered). 3. White, red. July. Gardens. 1831.
 — *Noisetina* (Noisette's). 3. Red.
 — *ochroleuca* (yellowish-white. *Chinese*).
 — *cream*. June. China. 1824.
 — *odoratissima* (sweetest-scented. *Chinese*).
 — *3*. Pale pink. June. China. 1810.
 — *panno'sa* (ragged). Purple, rose.
 — *pu'nila* (dwarf). 1. Pink. July. China.
 — *involuta* (involved). 3. White. July. E. Ind. 1808.
 — *involuta* (curved-in-petaled). 2. Pale red. June. Scotland.
 — *Kamtschatica* (Kamtschatka). 3. Red. July. Kamtschatka. 1791.
 — *Klukii* (Kluk's. *Sweet-briar*). 6. Pink. July. Tauria. 1819.

R. Lawrenceana (Miss Lawrence's). 1. Blush. China. 1810.
 — *Lindleyi* (Dr. Lindley's. *Carolina*). Red. July. N. Amer.
 — *lu'cida* (bright-leaved). 4. Red. July. N. Amer. 1724.
 — *lu'tea* (single-yellow. *Eglantine*). 3. Yellow. June. Germany. 1596.
 — *puni'cea* (scarlet. *Austrian*). 3. Yellow, scarlet. June. Austria. 1596.
 — *subrubra* (petals reddish above). 4. Yellow, red. June.
 — *luteo'scens* (yellowish. *American*). 4. Pale yellow. June. N. Amer. 1780.
 — *macrophylla* (large-leaved). 6. Red. Gosaing-shan.
 — *majalis* (May. *Hog*). 3. Pale red. May. Britain.
 — *micrantha* (small-flowered. *Sweet-briar*). Pale red. June. Britain.
 — *microcarpa* (small-fruited). 10. White. July. China. 1822.
 — *microphylla* (small-leaved). 3. Blush. September. China. 1823.
 — *alba* (white-flowered). 3. White.
 — *mol'lis* (soft). 6. Red. June. Caucasus. 1818.
 — *Montezuma* (Montezuma's). 3. Pale red. June. Mexico. 1825.
 — *moschata* (musk). 12. White. August. Bombay. 1596.
 — *multiflora* (many-flowered). 12. Red. June. China. 1822.
 — *Boursaultii* (Boursault's). 12. Pink. June.
 — *carnea* (flesh). Red. June. China. 1822.
 — *Grevillei* (Greville's. *Seven-sisters*). 20. Purple. June. China. 1824.
 — *Russelliana* (Russell's).
 — *myriacantha* (myriad-spined). 1. White. May. France. 1820.
 — *nitida* (glossy-leaved). 2. Red. July. N. Amer. 1807.
 — *oxyacantha* (sharp-spined). 3. Red. June. Siberia. 1820.
 — *fo're-plé'ne* (double-flowered). Blush. July. N. Amer.
 — *parviflora* (small-flowered. *Carolina*). 2. Flesh. July. N. Amer. 1724.
 — *pulchella* (neat). 2. Red. June. 1824.
 — *ra'pa* (turnip). 4. Red. July. N. Amer.
 — *reversa* (reversed). 5. White, pink. June. Hungary. 1816.
 — *rubifolia* (bramble-leaved). 6. Pale red. August. N. Amer.
 — *fenestralis* (windowed). 4. Flesh. June. N. Amer.
 — *rubigino'sa* (rusty *Sweet-briar*, or *Eglantine*). 5. Pink. June. Britain. *Aculeatis'sima* (very prickly); *flexuosa* (flexible-branched); *grandiflora* (large-flowered). 4. *Lyoni* (Lyon's); *ma'ior* (greater); *memoralis* (grove); *parvifolia* (small-leaved); *pubera* (downy); *rotundifolia* (round-leaved). Germany. *Spinulifolia* (leaflets-spinuled); *umbellata* (umbelled). Germany. *Vaillantiana* (Vaillant's). White.
 — *rubrifolia* (red-leaved). 6. Red. June. South Europe. 1814.
 — *hispidula* (bristly-flower-stalked). Red. June. 1822.
 — *incrimis* (unarmed). Purple. June. Switzerland.
 — *pinnatifida* (leaflet-like-cut-sepaled). Purple. June. Switzerland.
 — *Redoutea* (Redoute's). 3. Pale red. June.
 — *Sabini* (Sabine's). 8. Red. June. Britain.
 — *gracilis* (slender). White, red. Britain.

- R. sanguisorbifolia* (burnet-leaved). 3. White. June.
- *sarmentacea* (twiggy). 6. Pink. June. Britain.
- *semperflorrens* (ever-blowing). 10. Crimson. All. China. 1789.
- *sempervirens* (evergreen). 20. White. June. South Europe. 1629.
- — *Leschenaultiana* (Leschenault's). 60. Violet. June. Neilgherry.
- *sepium* (hedge). Pink. June. Britain.
- *Sherardi* (Sherard's). 6. Pink. June. England.
- *Sinica* (three-leaved. China). 5. White. June. China. 1759.
- *spinossima* (spiniest. Scotch). 2. White, red. June. Britain.
- *suaveolens* (sweet-scented. American Sweet-briar). Pink. June. N. Amer. 1800.
- *sua-vis* (sweet). 4. Purple. June. 1818.
- *sulphurea* (sulphur). 4. Yellow. July. Levant. 1629.
- *syloestris* (wood). 7. Red. June. England.
- *stylia* (clustered-styled). 6. Pink. June. Britain.
- *Taurica* (Taurian). 6. Red. June.
- *tomentosa* (downy-leaved-Dog). 6. Red, white. June. Britain.
- *scabriuscula* (rather-rough). 6. Pink. June. Britain.
- *turbinalta* (top-shaped-calyxed. Frankfort). 5. Red. June. Germany. 1629.
- — *Frankfurtiana* (Frankfort). 5. Rose, purple. June. Frankfort.
- *Orbesseana* (double. Orbessean). 4. Rose-coloured. June.
- *villosa* (shaggy). 6. Red. June. Britain.
- — *pomifera* (apple-bearing). Red. June. Europe.
- — *resinosa* (resinous). Red. June. Ireland.
- *Wilsoni* (Wilson's). 3. Dark pink. June. Britain.
- *Woodsii* (Wood's). 3. Pink. May. N. Amer.

ROSCOEÆ. (Named after Mr. Roscoe, the founder of the Liverpool Botanic Garden. Nat. ord., *Gingerworts* [Zingiberaceæ]. Linn., 1-Monandria 1-Monogyna.)

Stove herbaceous perennials, all but one purple-flowered, and all natives of Nepal. Division in spring; sandy loam and leaf-mould. Winter temp., 48° to 55°; summer, 60° to 75°.

- R. capitata* (headed). 1. July. 1819.
- *elatior* (taller). 1. July. 1820.
- *gracilis* (slender). 1. July. 1821.
- *lutea* (yellow). 1. Yellow. May. 1839.
- *purpurea* (purple). 1. July. 1820.
- *spicata* (spiked). 1. July. 1820.

ROSE. *Ro'sa*.

Propagation.—Most kinds of roses can be propagated by cuttings. By this method we only obtain dwarfs; yet, as many sorts do best on their own roots, the China and Tea-scented for instance, for these we must adopt cuttings. The best time for making the cuttings is in April.

Cuttings in Pots.—The most convenient-sized pots are five inches across; fill them with moderately rich, light earth, press it firmly down, then fill the pots quite up

to the rim with silver sand, or with finely-sifted river sand; give a gentle watering from a fine-rosed watering-pot, then cut the cuttings into lengths of about four inches, remove all the leaves except those belonging to the top buds, make the cut very smooth across, just under the lowest bud; the cutting is then ready to be planted. Have a small stick about as thick as a quill, and thrust it into the soil just the depth of the cutting, so as to leave the top bud out; close the earth firmly to the bottom of the cutting with the stick; place the cuttings close to the edge of the pots, with the leaves of all pointing inwards; then close up the holes with a little of the sand, and give a gentle watering. The best situation to place the pots in is a pit, with hand-glasses over them. If you have not that convenience, plunge the pots in coal-ashes on a shady border, covering them with hand-glasses. Shift into larger pots as they require.

Cuttings in the Open Ground.—Choose a shady border, next a low wall or hedge—the latter to be close-clipped with the garden-shears. Let the soil be well dug and chopped small, and the surface raked very fine; then pour some water upon it, and let it stand a day, to become moderately dry again. Prepare the cuttings as above directed, and always expose the cuttings as little as possible to the sun and air; they may be preserved fresh by having a little damp moss or hay at hand to cover them with as soon as they are prepared. When a sufficient number are ready, open a trench with a small spade at the end of the border. Chop the side of the trench furthest from you straight down just a sufficient depth to leave the topmost bud and leaf out of the soil; then place the cuttings against this upright bank about three inches apart. When the row is filled with cuttings, with your spade put the soil against the cuttings, and with your foot tread it firmly to them. Take great care that the soil is quite close and firm around each. Then fill up level with the top of the row of cuttings another portion of soil, until there is a bank of earth six inches distant from the first row. Chop down the outermost edge of the soil, so as to leave another upright bank to set the second row of cuttings against, and so proceed from row to row, till you have filled the space set apart for this purpose. Examine

a few of them occasionally after about six weeks, and if they are rooted, lift them carefully with a trowel or small spade, and either pot them or plant them out in rows in a more open situation. By the autumn following they will be nice plants, and may be planted in the situation where they are to grow and flower.

By Suckers.—Roses send up many suckers annually, which may be taken up in autumn, winter, or early spring, with some rootlets attached; and the strongest may be planted out finally, and the weakest in the nursery for a year or two longer. They will readily grow, and will most of them produce flowers the following summer. When rose-trees have grown into large bunches, with many suckers, the whole may be taken up and slipped, or divided into separate plants. The Moss and some others furnish suckers but sparingly.

By Layers.—To obtain shoots for layering, a quantity of rose-trees should be planted for stools, which, being headed down low, will throw out shoots abundantly, near the ground, in summer, for layering in autumn or winter following. (See LAYERING.) They will be rooted by next autumn, and fit for transplantation in nursery rows, though sometimes the moss rose and some others require two years before they are tolerably well rooted; but of these sorts you may also try layers of the shoots of the year, layered in summer, any time in June. They will probably root a little the same season. The layers of all the sorts, after being properly rooted, should be taken up in autumn and planted in the nursery, to have one or two years' growth.

By Budding.—See BUDDING and GRAFTING.

Soil and Situation.—The best soil is a rather strong loam; the deeper it is the better. It should be well-drained. Such land as will grow good wheat or good hops will grow fine roses. Next, it should be rich to grow them fine: if not already so, it ought to have thoroughly decayed dung added to it. A portion of superphosphate of lime (bones dissolved in oil of vitriol) will be of great benefit to them—a manure that may be had of any respectable manure-dealer. The rose-garden ought to open to the south and east, but be sheltered from the north and north-west winds. Tall beech or hornbeam hedges are the best shelter against

gales blowing from those points. Roses should not be planted so near trees as to be overhung by them, as the drip from the trees will prevent them from thriving, and injure the flowers.

Planting.—The best season is the early part of November. They will succeed tolerably even to the middle of March, but not so well as in the autumn. If you have to procure them from a distant nursery, and they are some time out of the ground, make a puddle of earth and water of nearly the consistence of paint. Dip the roots in this puddle, and plant them immediately. Should the border intended for the rose be long and narrow, plant the tallest standards in the back row, the next size in the second, and the half-standards in the third, and the dwarfs in the front row.

Autumn Pruning: Summer Roses.—*Provence, including the Moss Rose.*—These require to be pruned to three or four eyes, according to the strength of the shoots. *Damask.*—These require to be pruned according to the strength of the growth of the different varieties. *Madam Hardy*, for instance, is a strong grower, and ought to be left with shoots of six eyes. *White Damask.*—This species should be pruned similarly to the Damask. *Gallica, or French.*—Some of these are very strong growers, and must be cut accordingly. Some shoots, in good soil, will grow three or four feet long. Those shoots are often pithy and green, and ought to be cut clean out, and the rest shortened to one foot or eighteen inches, according to their strength. *Hybrid, Provence.*—They grow naturally in compact heads and many branches, and should be pruned by thinning out about one-third of the shoots, and shortening the rest to six or eight eyes. *Hybrid, Chinese.*—The strong growers, *Brennus* for instance, must be cut to eight or nine eyes; whilst the *Beauty of Billard* is a weak grower, and should be cut to two or three eyes, and half the shoots entirely cut away. *Scotch.*—All that these require is to have half of the shoots thinned out, and those that are left cut to half their length. *Climbing.*—These require a different mode of pruning to all other roses. We shall describe it as the spur system. Train in young shoots during the summer; in the autumn shorten those shoots one-fourth of their length—that is, supposing the shoot is four

feet long, cut one foot of it off, and so reduce it to three feet, and in the same proportion for longer shoots. The shoots will then, during the summer, produce side-shoots; these are the spurs. In the month of March following, take the shoots off the trellis walls or pillars, prune the spurs into two or three eyes, and then tie or nail them up again neatly to the supporters.

Autumn Pruning: Autumn Roses.—*Macartney.*—The *Macartney* rose itself requires very little pruning; but the *Maria Leonidas* requires pruning freely, shortening the strong shoots to eight or nine eyes, and the weak ones to three or four. *Damask Perpetuals* and *Hybrid Perpetuals* are mostly weak growers, and should be cut into four or five eyes, and a third of the shoots cut clean away. *Bourbons* and *Noisettes* are middling growers, and should be pruned moderately; strong shoots to be cut to five or six eyes, and the weak ones to three or four. *China* and *Tea-scented.*—Most of these are rather tender; consequently, the wood does not ripen to any length. They should, therefore, be pruned close. If they are planted against a wall they may be pruned longer, as the wood then becomes firmer and better ripened. Prune those in the open air, both standards and dwarfs, to two or three eyes, those on walls to six or seven, in proportion to their strength.

Summer Pruning.—It often happens, where the roses are growing in good ground, that some of them produce branches that grow so strong and fast as to rob the rest of their due support. These branches are what the French call *gourmands*, which may be Englished *gluttons*. Only stop these at first, and wait until the autumn before you cut them clean off. When the rose-trees throw out a great number of shoots equally strong, and they appear to be crowded, prune away about one-third of them, but do not shorten any of the others, as that will cause them to send out a quantity of small, weak shoots, which will injure the flowers the following season.

Roses in Pots.—Procure some pots that are well cleaned, or, what is better still, quite new; and 24's are a very convenient size to commence with. Worked roses are preferable, for pot purposes, to those grown on their own roots; therefore select such as are dwarf standards only,

and worked close to the collar, so that when the rose is potted the stem is scarcely visible. *Tea*, *China*, and *Bourbon*, or their hybrids, are better suited for forcing and pot plants than *Noisette* and *Hybrid perpetuals*; the two last-named class of roses growing to greater perfection in the open air. Amongst *Tea Roses* select *Safrano*, *Devoniensis*, *Comte de Paris*, *Nephetos*, and *Princess Clementine*. *Mrs. Bosunquet*, *Duchess of Kent*, with a few others, amongst *Chinas*; *Souvenir de Malmaison*, *Leveson Gower*, and *Dupetit Thouars*, amongst *Bourbons*. Of the above *Souvenir de Malmaison* is unrivalled as a pot rose. Having selected plants, lose no time; but before the roots have got dry, pot them (having first pruned the strong roots) in a mixture of half yellow loam, and the rest old cow-dung, leaf-mould, and sand in equal parts; but a greater proportion of loam may be added with advantage, should the rose to be potted be a *Bourbon* or *Hybrid perpetual*. The plants being potted in October, place them on ashes under a north wall, in some sheltered part of the garden, until the frosts compel to put them in cold pits, keeping them, since their being repotted, as dry as can be to prevent growth, but not sufficiently so to cause the plants to flag, or their roots to get quite dry. Then, about the commencement of December, prune all that you intend bringing into the greenhouse in the early part of January, for blooming in May and June, and stimulate them gently by applying water at a temperature a few degrees warmer than the atmosphere of the pit where they still are, so as when they are introduced into the greenhouse at the commencement of January, at a medium temperature of 45°, they are just beginning to push strongly. About the commencement of February a little more heat is to be given, and weak liquid-manure is applied about twice a week, which is strengthened as the plants increase in vigour and have their buds well set. About this time syringing over-head with lukewarm water, or steaming, may occasionally be had recourse to, as it tends to give strength to the plants, and keeps away the aphids and other enemies. Lastly, when the shoots are sufficiently long for the purpose, they are to be gently brought down to the sides of the pot, or staked to such places as they are intended to

occupy, so as when the plants are ready for the show, these appliances may be removed, and the plant still preserve a round and uniform appearance. It is necessary at all times, when the temperature is at 50° or above, to give as much air as possible; and this may even be done when a gentle fire is going.

Diseases.—See EXTRAVASATED SAP, GREEN CENTRE, and MILDEW.

Insects.—See APHIS, ANISOPIA, and TORTRIX.

ROSE ACACIA. *Robi'nia hi'spida*.

ROSE APPLE. *Jambo'sa*.

ROSE BAY. *Epilo'bium angustifo'lium*.

ROSE CAMPION. *Ly'chnis*.

ROSEMARY. *Rosmari'nus officina'lis*.

Varieties.—There are three varieties—the green, golden-striped, and silver-striped. The first is in general cultivation.

Soil.—It thrives best on a poor, light soil mixed with old mortar, or other calcareous matters. In such, or when the plants are self-raised on an old wall, they will bear our severest winters; but in a rich soil they lose much of their aromatic nature, and perish in frost. For the green variety, the situation may be open; but the other two, being tender, require to be planted beneath a south wall, or in pots, to be sheltered in winter.

Propagation is by cuttings and rooted slips during any of the spring months, or by layers in the summer; but the finest plants are raised by seed. By layers is the best mode of propagating the gold and silver-striped varieties. Sow in March, or early in April, in drills half an inch deep and six inches apart. The rooted slips, and the cuttings of the young shoots, must be from five to seven inches long, and planted in a shady border, in rows eight or ten inches apart, previously removing the leaves from the lower two-thirds of their length. Layers may be formed by cutting young branches half through on their under-side, and pegging them down an inch or two below the surface: they become established plants by autumn. Water must be applied abundantly at the time of planting, and occasionally afterwards until established.

ROSE OF HEAVEN. *Ly'chnis cæ'li-ro'sa*.

ROSE OF JERICHO. *Anasta'tica*.

ROSE OF THE WORLD. *Came'llia Japo'nica ro'sa-mu'ndi*.

ROSE ROOT. *Se'dum rhodi'ola*.

ROSE SNOWBALL-TREE. *Vibu'num o'pulus ro'seum*.

ROSMARINUS. Rosemary. (From *ros*, dew, and *marinus*, of the sea; maritime plants. Nat. ord., *Lipworts* [Lamiaceæ]. Linn., 2-Diandria 1-Monogynia.)

Hardy evergreens, purple-flowered, and natives of the south of Europe. See ROSEMARY.

R. officina'lis (shop). 4. February. 1548.

— *fo'liis-arge'nteis* (silver-leaved). 4. March. 1548.

— *fo'liis-au'reis* (golden-leaved). 12. February. 1548.

— *latifo'lius* (broad-leaved). 12. February. 1548.

ROTATION OF CROPS. There are three circumstances to be regarded in regulating the order in which crops should follow each other:—1. Each crop should be as dissimilar as possible from its predecessor. 2. The exuvie of the preceding crop should not be offensive to its successor. 3. A spindle-rooted crop should succeed a fibrous-rooted crop, or *vice versa*.

ROTHIA. (Named after A. W. Roth, a German botanist. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 16-Monadelphia 6-Decandria.)

Hardy trailing annual. Seeds in a warm border, in April.

R. trifolia'ta (three-leafleted). 2. Sulphur. July.

ROUGE PLANT. *Rivi'na tincto'ria*.

ROXBURGHIA. (Named after Dr. Roxburgh, once director of the Botanic Garden, Calcutta. Nat. ord., *Roxburghworts* [Roxburghiaceæ]. Linn., 8-Octandria 1-Monogynia.)

Stove twining plants, with stems one hundred fathoms long in the hottest parts of India, where the roots are candied with sugar, and taken with tea. Propagated generally by suckers; sandy, fibry loam, and a little leaf-mould, and the usual plant-stove temperature.

R. gloriosoi'des (gloriosia-like). 6. Pink, yellow. July. 1803.

— *viridifo'ra* (green-flowered). Green. August. 1836.

ROYAL BAY. *Lau'rus no'bilis*.

ROYE'NA. (Named after A. Van Royen, a Dutch botanist. Nat. ord., *Ebenads* [Ebenaceæ]. Linn., 10-Decandria 2-Digynia. Allied to *Diospyros*.)

Greenhouse evergreen shrubs, from the Cape of Good Hope, all but one white-flowered. Cuttings of half-ripe shoots in sand, under a bell-glass, in April or May; sandy loam and fibry peat. Winter temp., 40° to 48°; summer, 60° to 75°.

R. glabra (smooth). 4. September. 1731.

— *hirsu'ta* (hairy-leaved). 7. Purple. July. 1752.

— *latifo'lia* (broad-leaved). 5. June. 1816.

— *lu'cida* (shining-leaved). 4. May. 1690.

ROY'LEA. (Named after Professor Royle,

King's College, London. Nat. ord., *Labiales* [Lamiaceæ]. Linn., 14-*Didynamia* 1-*Gymnospermia*. Allied to *Balota*.)

Greenhouse evergreen shrub. Cuttings of young shoots in spring, in sandy soil, with a bell-glass over them; sandy loam and leaf-mould. Winter temp., 40° to 48°.

R. elegans (elegant). 2. Purple. July. Nepaul. 1824.

RUBIA. Madder. (From *ruber*, red; the colour of the roots. Nat. ord., *Stelates* [Galiaceæ]. Linn., 4-*Tetrandria* 1-*Monogynia*.)

Half-hardy species, from cuttings in spring, under a hand-light, and peat and loam; the others are herbaceous plants, propagated by division of the roots, and flourishing in any good garden-soil; from *tinctorum* madder is obtained.

HALF-HARDY EVERGREENS.

R. angustifolia (narrow-leaved). 2. Pale yellow. July. Spain. 1772.

— *splendens* (shining). 3. Yellow. July. Spain. 1812.

HARDY HERBACEOUS.

R. cordifolia (heart-leaved). 3. White. July. Siberia. 1783.

— *tinctorum* (dyer's). 4. Yellow. July. South Europe. 1566.

RUBUS. Bramble. (From the Celtic *rub*, red; colour of the fruit of some of the species. Nat. ord., *Roseworts* [Rosaceæ]. Linn., 12-*Icosandria* 3-*Polygynia*.)

Generally by suckers; frequently by cuttings; also by seeds for species, and obtaining new varieties; also easily obtained by pegging down the points of the shoots in the soil; deep, rich, loamy soil.

GREENHOUSE EVERGREENS.

R. apetalus (petalless). 6. Purple. July. Isle of France. 1823. Stove.

— *Jamaicensis* (Jamaica). 6. Jamaica. 1822.

— *Moluccanus* (Moluccas). 3. Red. July. E. Ind. 1810.

— *parvifolius* (small-leaved). 2. Pink. August. China. 1813.

— *pinnaus* (leafleted). 5. Pink. June. Madeira. 1789.

— *reflexus* (bent-back). 3. Red. July. China. 1817.

— *rostratus* (dewy-glanded). August. Madagascar. 1831.

— *roseifolius* (rose-leaved). 3. August. Mauritius. 1811.

— *coronarius* (garland). 3. August. Mauritius. 1811.

— *rugosus* (wrinkly). 3. Red. June. S. Amer. 1819.

— *sanguinolentus* (blood-red). 4. Red. Isle of France. 1824.

HARDY EVERGREENS.

R. abruptus (abrupt). 8. White. June. Britain. July. Britain.

— *carpinifolius* (hornbeam-leaved). 10. White. Britain.

— *discolor* (two-coloured). 8. White. June. Britain.

— *echinatus* (hedgehog). 8. White. June. Britain.

— *eglandula* (eglandine). 3. White. May. N. Holland. 1825.

— *Leightonianus* (Leighton's). 10. July. England.

— *Lejeuneanus* (Lejeune's). July. Channel Isles.

— *lingua* (tongue-leaved). 10. July. England.

— *rubra* (raspberry-like). 8. August. Britain.

— *rufus* (rude). July. Britain.

— *hystrix* (porcupine). July. Britain.

R. rotundifolius (round-leaved). 10. North of India. 1845.

— *villosus* (hairy-stemmed). July. England.

— *argenteus* (silvery-leaved). July. England.

— *pubescens* (downy). July. England.

— *syboticus* (wood). July. England.

— *tennis* (slender). July. England.

— *vulgaris* (common). 8. June. Britain.

HARDY HERBACEOUS.

R. acutis (stemless). Rose. June. N. Amer. 1802.

— *arcticus* (arctic). 4. Pink. June. Britain.

— *chamæmorus* (cloud-berry). 4. White. May. Britain.

— *stellatus* (starred). 4. June. N. Amer. 1824.

HARDY DECIDUOUS.

R. affinis (related). 8. White. July. Britain.

— *bracteatus* (broad-bracted). 8. White. August. Britain.

— *agrestis* (field). 6. White. June. Hungary. 1820.

— *argutus* (sharp-toothed). 3. White. June. N. Amer. 1823.

— *asper* (rough). 5. White. May. Nepaul. 1821.

— *biflorus* (two-flowered). May. Nepaul. 1818.

— *casius* (grey. Dewberry). 3. White. June. Britain.

— *arvensis* (corn-field). 2. White. June. Britain.

— *foliis-variegatis* (variegated-leaved). 2. White. June. Britain.

— *grandiflorus* (large-flowered). 2. White. June. Britain.

— *parvifolius* (small-leaved). 2. White. June. Britain.

— *Canadensis* (Canadian). 3. White. June. N. Amer. 1811.

— *caneus* (hoary). 6. White. July. European Alps. 1820.

— *cordifolius* (heart-leaved). 8. White. June. Germany. 1816.

— *corylifolius* (hazel-leaved). 10. White. July. Britain.

— *caesus* (hoary). 10. White. July. Britain.

— *glandulosus* (glandulous-petaled). 10. White. July. Britain.

— *cuneifolius* (wedge-leaved). 3. White. June. N. Amer. 1811.

— *distans* (distant). 5. White. July. Nepaul. 1818.

— *diversifolius* (diverse-leaved). 8. White. August. Britain.

— *dumetorum* (thicket). 8. White. August. Britain.

— *ellipticus* (oval-leaved). White. Nepaul. 1827. Half-hardy.

— *fastigiatus* (tapering). 8. White. July. Britain.

— *fissus* (cleft).

— *flagellaris* (rod). 6. White. June. N. Amer. 1789.

— *inermis* (unarmed). 12.

— *foliolosus* (small-leaved). 6. White. June. Nepaul. 1818.

— *fruticosus* (shrubby. Common Bramble). 10. Pink. August. Britain.

— *coloratus* (one-coloured-leaved). 10. July. Germany.

— *floribundus* (double-pink-flowered). 10. Pink. July. Britain.

— *foliis-variegatis* (variegated-leaved). 10. Pink. July. Britain.

— *inermis* (unarmed). 10. Pink. July. Britain.

— *leucocarpus* (white-fruited). 10. July. Britain.

— *pompinius* (pompon). 10. White, pink. July. Britain.

— *Tauricus* (Taurian). 10. Pinkish. July.

— *fusco-ater* (brownish-black). August. Britain.

- R. glandulosus* (glanded). 10. July. Germany. 1816.
— hirtus (hairy). 10. August. Hungary. 1816.
— hispidus (bristly). 3. August. Canada. 1768.
— ho'rri'dus (horrid). 6. June. Germany. 1817.
— idaeus (raspberry). 5. May. Britain.
— microphyllus (small-leaved). 3. May. Britain.
— Kohle'ri (Kohler's). 8. August. Britain.
— lacinia'tus (jag-leaved). 12. White, red. August.
— lanugino'sus (woolly). 10. June. Siberia. 1820.
— leucostachys (white-spiked). 10. June. Britain.
— Linkia'nus (Link's). 10. August. Europe. 1821.
— macrophyllus (large-leaved). 8. June. Britain.
— Menkii (Menk's). 8. July. Germany. 1816.
— micranthus (small-flowered). 10. Red. July. Nepal. 1822.
— nitidus (shining). 3. August. Britain.
— Nutka'nus (Nootka-Sound). 4. August. N. Amer. 1826.
— occidenta'lis (western). 5. May. N. Amer. 1696.
— odoratus (sweet-scented). 7. June. N. Amer. 1800.
— pallidus (pale). August. Britain.
— plicatus (plaited). 10. August. Britain.
— rhamnifolius (buckthorn-leaved). 10. September. Britain.
— rubricaulis (red-stemmed). 6. June. Germany. 1818.
— sa'nctus (holy). 8. Pink. June. Palestine. 1823.
— saxatilis (stone). 4. June. Britain.
— Schlechtenda'hlii (Schlechtendahl's). 10. June. Europe. 1823.
— Schleiche'ri (Schleicher's). 8. June. Germany. 1818.
— setosus (bristly-stemmed). 2. June. N. Amer. 1827.
— spectabilis (showy). 4. Dark red. May. Columbia. 1827.
— Sprenge'lii (Sprengel's). 10. Pink. August. Germany. 1823.
— strigosus (short-bristled). 3. June. N. Amer.
— suberectus (sub-upright). 4. August. Britain.
— tiliaefolius (lime-leaved). 6. June. Germany. 1819.
— tomentosus (woolly). 10. August. Germany. 1818.
— triflorus (three-flowered). 3. June. Canada.
— ulmifolius (elm-leaved). 10. August. Spain. 1823.
— villosus (shaggy). 3. August. N. Amer. 1777.

RUDBECKIA. (Named after *O. Rudbeck*, a Swedish botanist. Nat. ord., *Composites* [Asteraceæ]. Linn., 19-*Syn-genesia* 3-*Frustranea*.)

Hardy herbaceous, yellow-flowered perennials, from North America, except where otherwise mentioned. Seeds and division of the plant in spring; common garden-soil; *napiifolia* requires the protection of the cold pit in winter.

- R. amplexifolia* (leaf-clasping). 3. July. 1793.
— asperima (roughest). 9. Red, white. September. 1832.
— columna'ris (columnar). 3. August. 1811.
— pulcherrima (most-beautiful). 3. Reddish-yellow. August. 1835.
— digita'ta (hand-leaved). 6. August. 1759.
— Drummo'ndi (Drummond's). Orange. August. 1836.
— fulgida (bright). 3. July. 1760.
— hirta (hairy). 2. August. 1714.
— lacinia'ta (jagged-leaved). 6. August. 1640.
— laeviga'ta (smooth). 3. July. 1812.
— napiifolia (turnip-leaved). 2. July. New Spain. 1824.

- R. pinna'ta* (leafleted). 3. July. 1803.
— radula (raspberry-leaved). 2. August. 1825.
— submento'sa (rather-downy). 3. August. 1802.
— triloba (three-lobed). 4. August. 1699.

RUDOLPHIA. (Named after *W. Rudolph*, a Prussian botanist. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 17-*Diadelphia* 4-*Decandria*. Allied to *Erythrina*.)

Stove evergreen twiners, with scarlet flowers, from the West Indies. Young side-shoots in sand, under a bell-glass, in a moist, sweet bottom-heat; fibry loam, sandy peat, and a little charcoal. Winter temp., 48° to 60°; summer, 60° to 80°.

- R. dubia* (doubtful). 6. 1815.
— Portoricensis (Porto-Rico). June. 1820.
— rosea (rosy). 6. 1826.
— volubilis (twining). July. 1820.

RUE, or HERB GRACE. (*Ruta graveolens*.) Thrives best in a poor, clayey loam, mixed with calcareous rubbish, in an open situation. It is propagated by slips and cuttings as well as from seeds, the first two modes being usually practised as being the most easy. It may be planted or sown at any time during the spring. The seed in drills six inches apart, and a quarter of an inch deep. The rooted slips, or cuttings, may be planted on a poor, shady border, and watered occasionally until taken root. In the autumn the plants may be removed. During their after-growth they must be kept pruned in a shrubby form, and never be allowed to produce seed.

RUELLIA. (Named after *J. Ruella*, a French botanist. Nat. ord., *Acanthads* [Acanthaceæ]. Linn., 14-*Didynamia* 2-*Angiospermia*.)

All blue-flowered, except where otherwise mentioned. Cuttings of the young shoots in spring or summer, in light, sandy soil, in a sweet hot-bed; fibry loam, leaf-mould, and peat. Winter temp., 45° to 58°; summer, 60° to 85°.

GREENHOUSE HERBACEOUS.

- R. biflora* (two-flowered). 2. July. Carolina. 1765.
— lactea (milky). 2. Pale violet. July. Mexico. 1796.
— strepens (rattling). 2. July. N. Amer. 1726.

STOVE EVERGREENS.

- R. cernua* (drooping). 1. July. E. Ind. 1816.
— fœtida (fetid). 2. July. S. Amer.
— formosa (handsome). 2. Scarlet. August. Brazil. 1808.
— fulgida (bright). 2. Scarlet. July. W. Ind. 1804.
— lilacina (lilac). 3. Lilac. October. 1844.
— longiflora (long-flowered). Purplish-lilac. October.
— longifolia (long-leaved). 2. July. E. Ind. 1820.
— oblongifolia (oblong-leaved). 3. Rose. August. Brazil. 1830.
— ocyroides (basil-like). 1½. July. Mexico. 1815.
— picta (painted). 1. June. Domingo. 1826.
— Purdieana (Purdie's). Crimson. March. 1845.

STOVE HERBACEOUS.

- R. australis* (southern). 2. July. N. Holland. 1824.
 — *ciliatiflora* (hair-fringed-flowered). Purple, blue. September. Buenos Ayres. 1838.
 — *cilio'sa* (hair-fringed). 1. July. Georgia. 1824.
 — *clandestina* (hidden). 2. July. Barbadoes. 1728.
 — *dependens* (hanging-down). 1½. July. E. Ind. 1816.
 — *elegans* (elegant). 2. August. E. Ind. 1834. Annual.
 — *hirta* (hairy). 1. July. E. Ind. 1817.
 — *macrophylla* (large-leaved). 3. Red. St. Martha. 1824.
 — *ovata* (egg-leaved). 2. July. Mexico. 1800.
 — *paniculata* (panicked). 3. Purple. August. W. Ind. 1768.
 — *pubescens* (downy). 2. July. Cape of Good Hope. 1823.
 — *rubricaulis* (red-stemmed). 1. July. Mexico. 1823.
 — *salicifolia* (willow-leaved). 1. July. E. Ind. 1820.
 — *tetragona* (four-cornered). 2. June. Brazil. 1824.
 — *tuberosa* (tuberous). 2. July. Jamaica. 1752.
 — *undulata* (waved). 2. E. Ind. 1824.
 — *violacea* (violet). ½. Violet. July. Guiana. 1820.

RUINS are a class of buildings beautiful as objects, expressive as characters, and peculiarly calculated to connect with their appendages into elegant groups: they may be accommodated with ease to irregularity of ground, and their disorder is improved by it; they may be intimately blended with trees and with thickets, and the interruption is an advantage, for imperfection and obscurity are their properties, and to carry the imagination to something greater than is seen, their effect.

RUI'ZIA. (Named after H. Ruiz, co-author with Pavon of the *Flora Peruviana*. Nat. ord., *Bytneriads* [*Bytneriaceæ*]. Linn., 16-*Monadelphias* 8-*Polygynias*. Allied to *Dombeaya*.)

Stove, white-flowered evergreens, from the Isle of Bourbon. Cuttings of half-ripened side-shoots in summer, in sandy soil, under a bell-glass, but raised at night, and in a mild hotbed; sandy loam and fibry peat. Winter temp., 50° to 55°; summer, 60° to 80°.

- R. lobata* (lobed-leaved). 6. 1816.
 — *variabilis* (variable-leaved). 6. May. 1792.

RUNCINATE, or LION-TOOTHED, describes the edge of a leaf cut into transverse sharp-pointed segments, pointing backwards, as in the leaf of the Dandelion.

RUN. A plant advancing to seed is said by gardeners to have *run*. Also, when the dark colouring of a carnation, or other flower, becomes confused or clouded with its lighter ground colour, they say it is a *run flower*. Abundance of moisture and a rich soil promote the development of leaves, and, consequently, check running, or producing seed. A suitably fertile soil also preserves the colours of a flower pure and distinct;

over-fertility or poverty of soil will equally cause the colours to run.

RU'SCUS. Butcher's Broom. (From *bruscus*, derived from the Celtic *beus*, box, and *kelem*, holly; Box Holly, or Butcher's Broom. Nat. ord., *Lilyworts* [*Liliaceæ*]. Linn., 6-*Hexandria* 1-*Monogynia*.)

Hardy evergreen shrubs. Suckers, and dividing the roots; any common, rich soil. *Andro'gynus* is a greenhouse evergreen climber, and, like the rest of the Butcher's Brooms, retains the singularity of producing its flowers and fruits on the edges of the leaves.

- R. aculeatus* (prickly). 1. Green. May. England.
 — *lucida* (loose). 1. Green. April. Portugal.
 — *rotundifolius* (round-leaved). 1. Green. March.
 — *andro'gynus* (hermaphrodite). 3. Green, white. April. Canaries. 1713.
 — *hypoglossum* (tongue-under-tongue). 1. Pale yellow. May. Italy. 1598.
 — *hypophyllum* (leaf-under-leaf). 1. Green. June. Italy. 1640.
 — *trifoliat'us* (three-leafleted). 2. Green. Zante.
 — *latifolius* (broad-leaved). Green, white. May. Madeira.
 — *racemosus* (racemed). 4. Green, yellow. April. Portugal. 1814.

RUSH BROOM. *Vimina'ria*.

RUSSE'LIA. (Named after Dr. Russel, author of a "Natural History of Aleppo." Nat. ord., *Figworts* [*Scrophulariaceæ*]. Linn., 14-*Didynamia* 2-*Angiospermia*.)

Stove, red-flowered evergreens, from Mexico. Cuttings in sandy soil, in heat; also frequently by suckers. If a large branch is allowed to lie along the ground in a warm, moist place, plenty of plants will be made from its twigs rooting; sandy loam, peat, and leaf-mould. Winter temp., 45° to 55°; summer, 60° to 85°.

- R. floribunda* (bundle-flowered). 4. 1824.
 — *juncea* (rushy-branched). 3. July. 1833.
 — *multiflora* (many-flowered). 4. July. 1812.
 — *ternifolia* (three-leafleted). 4. 1818.

RUST. A disease of the berries of the grape. It appears in the form of a rough, rusty appearance of their skins, which have, in fact, become thick and hardened. Some think it arises from the berries being handled, or the hair of the head touching them; but the disease is often too general to admit of this topical explanation. We believe it to arise from an over-heating and sudden reduction of temperature of the vinery whilst the grapes were young, and thus tending to force them to a premature rapidity of growth. Any excessive pressure upon the cuticle, whether from within or without, causes its thickening.

RUSTIC STRUCTURES are pleasing in recluse portions of the pleasure-ground, if this style be confined to the formation

of either a seat or a cottage; but it is ridiculous, if complicated, and elegant forms are constructed of rude materials. Thus we have seen a flower-box, intended to be Etruscan in its outlines, formed of split hazel stakes—a combination of the rude and the refined, giving rise to separate trains of ideas totally unassociable.

RUTA. Rue. (From *rus*, to flow; from some reputed medicinal virtue. Nat. ord., *Rueworts* [Rutaceæ]. Linn., 8-*Oc-tandria* 1-*Monogynia*.)

Seeds in spring; also by cuttings under a hand-light in sandy soil, in a shady place, in summer. They flourish best in a deep, sandy loam, with limy rubbish mixed. See *Rux*.

R. albiflora (white-flowered). 2. White. July. Nepaul. 1823. Half-hardy.

— *graveolens* (strong-scented. Common Rue). 3. Yellow, green. August. South Europe. 1752.

RUX'SCHIA. (Named after *F. Ruysch*, a Dutch botanist. Nat. ord., *Margraviads* [Margraviaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*.)

Stove evergreen. Cuttings of firm shoots in sand, under a glass, in a hotbed; fibry loam and leaf-mould. Winter temp., 55° to 60°; summer, 60° to 85°.

R. Chusiofolia (Chusia-leaved). 4. Purple. May. W. Ind. 1823.

RYA'NEA. (Named after *Dr. Ryan*. Nat. ord., *Passionworts* [Passifloraceæ]. Linn., 13-*Polyandria* 1-*Monogynia*.)

Stove evergreen. Cuttings of ripened shoots in sand, in summer, in a hotbed, and under a bell-glass; fibry peat and sandy loam. Usual stove temperatures.

R. speciosa (showy). 10. Cream. August. Trinidad. 1823.

RYTIDOPHYLLUM. See *RHYTIDOPHYLLUM*.

S.

SA'BAL. (Probably the South American name of one of the species. Nat. ord., *Palms* [Palmaceæ]. Linn., 6-*Hexandria* 3-*Trigynia*.)

Stove, green-flowered Palms. By suckers; light, rich loam. Winter temp., 55° to 60°; summer, 60° to 85°.

S. Adansonia (Adanson's). 6. July. Florida. 1810.

— *Blackburniana* (Blackburn's). 6. Tropics.

— *graminifolia* (grass-leaved). 6. S. Amer. 1825.

— *palmetto* (small palm). 6. Georgia. 1825.

— *umbrellifera* (umbrella-bearing). 6. Jamaica. 1825.

SABBATIA. (Named after *L. Sabbati*, an Italian botanist. Nat. ord., *Gentianworts* [Gentianaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*.)

Hardy biennials, except *paniculata*, and all

from North America. Seeds in a shady, moist border; or if in pots, treated as alpine, having a saucer of water under them; the perennial by division in spring.

S. angulata (angled-stemmed). ♀. Purple. July. 1826.

— *calycosa* (leafy-calyxed). 1. Dark red. July. 1822.

— *chloroides* (chlora-like). ♀. Red. July. 1817.

— *gracilis* (slender). 1. Rose. July.

— *paniculata* (panicled). 1½. White. May.

1817. Perennial.

— *stellata* (star-flowered). Brown, yellow. June. 1827.

SABI'CEA. (From *sabisabi*, the Indian name. Nat. ord., *Cinchonads* [Cinchonaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Hamelia*.)

Stove, white-flowered, evergreen climbers. Cuttings of half-ripened shoots in sand, under a glass, in heat; sandy loam, fibry peat, with silver sand and charcoal. Winter temp., 55° to 60°; summer, 60° to 85°.

S. aspera (rough). Guinea. 1824.

— *hirta* (hairy). Jamaica. 1825.

SA'CCHARUM. Sugar Cane. (From *soukar*, its Arabic name. Nat. ord., *Grasses* [Graminaceæ]. Linn., 3-*Triandria* 2-*Digynia*.)

Stove herbaceous perennials. Suckers chiefly; cuttings taken from shoots that start from the joints; rich, loamy soil. Winter temp., 55° to 60°; summer, 60° to 90°, and moist atmosphere.

S. officinarum (shop. Common Sugar Cane). 12. India. 1597.

SACCOLA'BUM. (From *saccus*, a bag, and *labium*, a lip; bagged labellum. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-*Gynandria* 1-*Monandria*.)

Stove orchids, grown in baskets. See *ORCHIDS*.

S. ampullaceum (flask-formed). ♀. Rose. August. Sylhet. 1839.

— *Blumei* (Blume's). Violet, white. May. Java. 1835.

— *carinata* (keeled). India. 1838.

— *compressum* (compressed). Cream-white. Manilla.

— *densiflorum* (crowded-flowered). Brown, white. July. Manilla. 1838.

— *pallidum* (pale). Manilla. 1837.

— *denticulatum* (toothed). ♀. Yellow, red. Sylhet. 1837.

— *gemmatum* (budded). Purple. May. Sylhet. 1837.

— *guttatum* (spotted-flowered). 1. White, rose. April. E. Ind. 1820.

— *majus* (large-flowered). White, pink. July. E. Ind. 1839.

— *macrostachyum* (large-spiked). Variegated. Philippines. 1840.

— *micranthum* (small-flowered). Violet. July. E. Ind. 1837.

— *miniatum* (vermilion). ♀. Vermilion. May. Java. 1846.

— *ochraceum* (pale-reddish-yellow). Yellow, red. May. Ceylon. 1838.

— *præmorsum* (bitten-leaved). White, lilac. May. Malabar. 1840.

SACRED BEAN. *Nelumbium*.

SAFFRON. *Crocus sativus*.

SAGE. *Salvia officinalis*.

Varieties.—The Common Green; Wormwood; Green, with variegated leaves; Red, with variegated leaves; Painted, or Parti-coloured; Spanish, or Lavender-leaved; and Red.

Soil and Situation.—A dry, moderately fertile soil is best suited to their growth, in a sheltered situation.

Propagation: by Cuttings.—These may be either of the preceding or same year's growth; if of the first, plant in April; if of the latter, not until the close of May or middle of June. The shoots of the same year are usually employed, as they more readily emit roots, and assume a free growth. The outward and most robust shoots should be chosen, and cut from five to seven inches in length. All but the top leaves being removed, insert by the dibble almost down to these, in rows six inches apart each way, in a shady border, and during moist weather, otherwise water must be given immediately, and repeated occasionally, until they have taken root.

By Seed.—Sow in April, in a bed of rich, light earth, in drills a quarter of an inch deep, and six inches apart. When two or three inches high, thin the plants to half a foot apart, and those removed prick out at a similar distance. In the autumn or succeeding spring, as the plants are strong or weak, remove them to their final stations.

After-Culture.—The decayed flower-stalks, stunted branches, &c., remove in early winter and spring, and the soil of the beds slightly turn over. When the plants have continued two or three years, a little dry, well-putrefied dung may be turned in during early spring. Attention to the mode of gathering has an influence in keeping the plants healthy and vigorous. The tops ought never to be cropped too close, so as to render the branches naked or stumpy.

SAGE'NIA. (From *sagu*, the Malay name of some Palms, which this genus resembles in miniature. Nat. ord., *Ferns* [Polypodiaceæ]. Linn., 24-*Cryptogamia* 1-*Filices*.)

Stove, brownish-yellow-spored Ferns. See FERNS.

S. calca'rea (chalky). June. Isle of Luzon.

— *caudunata* (united). 4. June. Ceylon. 1845.

— *intermedia* (intermediate). June. Ceylon.

— *platyphylla* (broad-leaved). 3. June. Ceylon. 1845.

SAGI'NA. (From *sagina*, fatness; pre-

sumed nourishing qualities for sheep. Nat. ord., *Clovesworts* [Caryophyllaceæ]. Linn., 4-*Tetrandria* 3-*Trigynia*.)

Insignificant weeds, except *procumbens*, one of the prettiest of our alpine plants, which makes a close carpet on the ground, spreading far and wide, and has starry, white flowers. It is not more than half an inch high.

SAGITTA'RIA. Arrow-head. (From *sagitta*, an arrow; the leaves of some resemble an arrow-head. Nat. ord., *Alismads* [Alismaceæ]. Linn., 21-*Monœcia* 9-*Polyandria*.)

White-flowered aquatics. Division of the plant in spring; rich, loamy soil. The greenhouse and stove kinds in an aquarium, or in vessels duly supplied with water.

STOVE AQUATICS.

S. acutifolia (pointed-leaved). 1. June. America. 1816.

— *angustifolia* (narrow-leaved). 1½. July. Essequibo. 1827.

— *obtusifolia* (blunt-leaved). 2. July. China. 1804.

GREENHOUSE AQUATICS.

S. Donia'na (Don's). 1. July. Nepal. 1820.

— *graminea* (grass-leaved). 1½. July. Carolina. 1812.

— *hastata* (halbert-leaved). 1½. July. N. Amer. 1818.

— *heterophylla* (various-leaved). 1. July. N. Amer. 1822.

— *lanceifolia* (spear-head-leaved). 1½. June. W. Ind. 1787.

— *obtusata* (blunt-leaved). 1. July. N. Amer. 1820.

— *Sine'nsis* (Chinese). 2. October. China. 1812.

HARDY AQUATICS.

S. falcata (sickle-leaved). 1. July. Carolina. 1812.

— *latifolia* (broad-leaved). 1. July. N. Amer. 1818.

— — *fo're-pl'e'no* (double-flowered). 1. July. N. Amer.

— *na'tans* (floating). 1. July. Carolina. 1812.

— *rigida* (stiff-leaved). 1½. June. N. Amer. 1806.

— *sagittifolia* (common arrow-leaved). 2. July. England.

— — *fo're-pl'e'no* (double-flowered). 1½. July.

SAGO PALM. *Sa'gus*.

SAGRÆ'A. (Named after *R. de la Sagra*, a Spaniard. Nat. ord., *Melastomads* [Melastomaceæ]. Linn., 8-*Octandria* 1-*Monogynia*. Allied to *Miconia*.)

Stove evergreen shrubs. Cuttings of stubby young side-shoots in spring; sandy peat and fibry loam, with a little charcoal, and sufficient silver sand to keep the soil open. Winter temp., 45° to 60°; summer, 60° to 85°. The two following are the best:—

S. microphylla (small-leaved). 2. White. May. Jamaica. 1820.

— *sessiliflora* (stalkless-flowered). 1. Red. April. Guiana. 1793.

SA'GUS. Sago Palm. (From *sagu*, the Malay name. Nat. ord., *Palms* [Palma-cæ]. Linn., 21-*Monœcia* 6-*Hexandria*.)

Stove, green-flowered Palms. Suckers and seeds; rich, loamy soil. Winter temp., 60°; summer, 60° to 90°, and moist atmosphere.

S. pedunculata (long-flower-stalked). 50. Madagascar. 1820.

- S. Ru'ffia* (Ruffia). 60. Madagascar. 1820.
— Ru'mphii (Rumphius's). 50. E. Ind. 1800.
— vini'fera (wine-bearing). 50. Guiana. 1820.

ST. ANDREW'S CROSS. *Ascy'rum cru'x A'ndree*.

ST. BARNABY'S THISTLE. *Centau'rea solstitial'is*.

SAINTFOIN. *Onobry'chis*.

ST. JOHN'S BREAD. *Cerato'nia*.

ST. JOHN'S WORT. *Hype'ricum*.

ST. MARTIN'S FLOWER. *Alströme'ria flos-Marti'ni*.

ST. PETER'S WORT. *Hype'ricum Ascy'ron* and *Sympho'ria*.

SALADING. See the following:—American Cress, Beet Root, Borage, Burnet, Celeriac, Celery, Chervil, Corn Salad, Cress, Dandelion, Endive, Fenchio, Garden Rocket, Horse-radish, Lettuce, Mint, Mustard, Onions, Purslane, Radishes, Rape, Scurvy Grass, Succory, Water Cress, Wood Sorrel.

SALEP. *Orchis*.

SALISBU'RIA. Maiden-hair-tree. (Named after R. A. Salisbury, an English botanist. Nat. ord., *Taxads* [Taxaceæ]. Linn., 21-Monæcia 9-Polyandria.)

Hardy deciduous tree. Layers, which require from one to two years to root, unless the soil be kept moist about them; cuttings of the well-ripened shoots, taken off with a heel, and inserted under hand-lights; deep, sandy loam, and dry sub-soil. This is a highly ornamental tree, producing its male and female blossoms on different trees; and it is doubtful if the female plant be in this country. The readiest way to secure fruit would be to graft female shoots on the male plant.

S. adiantifo'lia (maiden-hair-leaved). 20. April. Japan. 1754.

SALIS'IA. (Named after the Countess de Salis. Nat. ord., *Myrtleblooms* [Myrtaceæ]. Linn., 18-Polyadelphia 3-Triandria. Allied to *Leptospermum*.)

Greenhouse evergreen shrub. Cuttings of young shoots, getting a little firm, in sand, under a bell-glass, in May; peat and loam. Winter temp., 38° to 48°.

S. pulche'lla (pretty). Rose. May. Swan River.

SAL'IX. Willow. (From the Celtic *sal*, near, and *lis*, water; place of growth. Nat. ord., *Willowworts* [Salicaceæ]. Linn., 22-Diaceia 2-Diandria.)

Cuttings of ripened shoots, which merely require to be inserted in the soil in the autumn; moist soil, inclining to the marshy, suits them best; very dwarf shrubs, propagating with more difficulty, should be struck in summer under a hand-light.

GREENHOUSE DECIDUOUS.

- S. Bonplandia'na* (Bonpland's). Mexico.
— Gariepi'na (Gariepan). April. Cape of Good Hope. 1816.
— Humboldtia'na (Humboldt's). 10. Peru. 1823. Evergreen.
— tetraspe'rma (four-seeded). 20. E. Ind. 1796.

HARDY EVERGREENS.

- S. cine'rea* (grey). 15. April. Britain.
— venulo'sa (veiny-leaved). 2. April. Scotland.

HARDY DECIDUOUS.

- S. acumina'ta* (pointed-leaved). 15. April. Britain.
— acutifo'lia (sharp-leaved). 8. April. Caspian Sea. 1823.
— Egypti'aca (Egyptian). Egypt.
— alaternoi'des (alaternus-like). April. Switzerland. 1824.
— al'ba (common-white). 40. April. Britain.
— — ceru'lea (blue). 40. May. Britain.
— — cris'pa (curled-leaved). England.
— albe'scens (whitish). April. Switzerland. 1824.
— alnifo'lia (alder-leaved). April. Europe. 1830.
— ambig'ua (doubtful). 20. April. Britain.
— — maj'or (greater). 5. April. England.
— undula'ta (wavy-leaved). April. England.
— Ammannia'na (Ammann's). 20. May. Austria. 1821.
— amygda'lina (almond-leaved). 2. April. Britain.
— Andersonia'na (Anderson's). 3. April. Scotland.
— angusta'ta (narrow-leaved). 10. March. Pennsylvania. 1811.
— angustifo'lia (narrow-leaved). 3. April. Caspian. 1825.
— Ansonia'na (Anson's). March. Switzerland. 1827.
— aquat'ica (water). 10. April. Britain.
— arena'ria (sand). 3. June. Scotland.
— a'tro-purpu'rea (dark-purple-branched). April. Switzerland. 1824.
— a'tro-vi'rens (dark green). May. Switzerland. 1824.
— aurif'la (eared). 2. April. England.
— austr'al'is (southern). April. Switzerland. 1824.
— Babylonia'na (Babylonian. Weeping). 30. May. Levant. 1730.
— — cris'pa (curled-leaved). May.
— — Napoleo'na (Napoleon's). 16.
— — vulga'ris (common). June. England.
— berberifo'lia (berberry-leaved). May. Dauria. 1824.
— betulifo'lia (birch-leaved). May. Scotland.
— betul'ina (birch-like).
— bi'color (two-coloured). 5. April. Britain.
— Borreria'na (Borer's). 8. May. Scotland.
— ca'sia (grey). 3. May. South Europe. 1824.
— ca'ndida (white). 10. April. N. Amer. 1811.
— can'dula (small-white). April. Europe.
— cane'scens (hoary).
— ca'prea (goat. Great-round-leaved). 30. April. Britain.
— carina'ta (keel-leaved). 2. April. Scotland.
— carpini'fo'lia (hornbeam-leaved). April. Germany. 1824.
— cerasifo'lia (cherry-leaved). April. Switzerland. 1824.
— chrysa'nthos (golden-flowered). April. Norway.
— cletha'fo'lia (cletha-leaved). April. Switzerland. 1824.
— confu'r'mis (uniform-leaved). April. N. Amer.
— conif'era (cone-bearing). 10. June. N. Amer. 1820.
— corda'ta (heart-leaved). 6. April. N. Amer. 1811.
— cordifo'lia (heart-leaved). 3. N. Amer. 1811.
— coria'cea (leathery-leaved). 8. April. Switzerland. 1825.
— coru'scans (glittering). 3. April. Germany. 1818.
— cotinifo'lia (cotinus-leaved). 2. March. Britain.
— crosso'lia (thick-leaved). April.
— Crowea'na (Crowe's). 8. April. Scotland.
— cydonia'fo'lia (quince-leaved). April. Switzerland. 1824.
— damasce'na (damson-leaved). 12. April. Scotland.

- S. Daphnoides* (Daphne-like). April. Switzerland. 1820.
- *Davallia'na* (Davall's). 6. May. Scotland.
- *deci'piens* (deceptive). 8. May. England.
- *decu'mbens* (lying-down). May. Switzerland. 1823.
- *Dicksonia'na* (Dickson's). 1. April. Scotland.
- *discol* (two-coloured). 8. April. N. Amer. 1811.
- *Donia'na* (Don's). 6. April. Scotland.
- *du'ra* (hardy). April.
- *elæagnoï'des* (elæagnus-leaved). 4. May. Europe. 1824.
- *eria'ntha* (woolly-flowered). April. Switzerland. 1820.
- *fagifo'lia* (beech-leaved). Croatia.
- *falca'ta* (sickle-leaved). 4. April. N. Amer. 1811.
- *ferrugine'a* (rusty-leaved). 12. April. Britain.
- *Finma'rchica* (Finmark). 10. April. Sweden. 1825.
- *fl'rma* (firm-leaved). April.
- *foliol'o'sa* (leafy). 6. April. Lapland. 1818.
- *Forbesia'na* (Forbes's). 6. April. Britain.
- *Forby'na* (Forby's). 8. April. England.
- *forma'sa* (elegant). Carinthia.
- *Forsteria'na* (Forster's). 10. April. Scotland.
- *fra'gilis* (brittle). 15. April. Britain.
- *fu'sea* (brown). 2. May. Britain.
- *arge'ntea* (silvery. Sand). 4. April. England. 1824.
- *fo'e'tida* (stinking). 1½. May. Britain.
- *incuba'cea* (trailing). 4. May. England.
- *prostra'ta* (lying-flat). 1. May. Britain.
- *re'pens* (creeping). 2. May. Britain.
- *vulga'ris* (common). May. Britain.
- *fusca'ta* (brown-stemmed). 2. April. N. Amer. 1811.
- *gemma'ta* (twin-catkin'd). March. Britain.
- *glabra'ta* (smooth). April. Switzerland. 1824.
- *glau'ca* (milky-green). 2. July. Scotland.
- *grise'a* (grizzly). 6. April. Pennsylvania. 1820.
- *Grisone'nsis* (Grison). 15. April. Switzerland. 1824.
- *grisophy'lia* (grey-leaved). April. Switzerland. 1824.
- *hasta'ta* (halbert-leaved). 15. May. Lapland. 1780.
- *arbu'scula* (little-tree). 1. May. Switzerland. 1824.
- *malifo'lia* (apple-leaved). 6. Britain.
- *serrula'ta* (saw-edged). 6. May. Lapland. 1810.
- *helix* (helix). 10. March. Britain.
- *Helve'tica* (Swiss). 14. April. Switzerland. 1824.
- *herba'cea* (herbaceous). ½. June. Britain.
- *heterophy'lia* (various-leaved). April. Switzerland. 1823.
- *hippohaëfo'lia* (hippohaë-leaved). April. Germany. 1823.
- *hi'rta* (hairy-branched). 15. April. England.
- *Hoffma'nna* (Hoffmann's). 30. May. England.
- *holoseri'cea* (velvety). 8. April. England.
- *Houstonia'na* (Houston's). 4. April. Virginia.
- *humilis* (lowly). 1½. April. 1820.
- *inca'na* (hoary). April. Austria. 1821.
- *incane'scens* (whitish-leaved). March. Switzerland. 1823.
- *Jacqui'nii* (Jacquin's). 2. April. Austria. 1818.
- *Kitai'bella'na* (Kitai'bel's). ½. April. Carpathian. 1823.
- *lacu'stris* (lake). March. Switzerland. 1824.
- *Lambertia'na* (Lambert's). 10. March. England.
- *lana'ta* (woolly). 2. May. Scotland.
- *Lappo'num* (Lapland). 2. May. Lapland. 1812.
- *latifo'lia* (broad-leaved). March.
- *lauri'na* (laurel-like). 8. April. England.
- *laxifl'o'ra* (loose-flowered). 12. April. Scotland.
- S. leucophy'lla* (white-leaved). 40. May. Europe. 1824.
- *linea'na* (narrow-leaved). 4. April. Switzerland. 1820.
- *livida* (livid). 1. May. Lapland. 1820.
- *longifo'lia* (long-leaved). April. N. Amer. 1819.
- *lu'cida* (shining). 8. May. N. Amer. 1811.
- *Lyo'nii* (Lyon's). Switzerland.
- *macrostipula'cea* (large-stipuled). May. Switzerland. 1824.
- *mespilifo'lia* (medlar-leaved). April. Switzerland. 1824.
- *Meyeria'na* (Meyer's). 20. April. Sweden. 1822.
- *Michelia'na* (Michel's). 15. April.
- *mollis'sima* (softest). 20. April. Germany.
- *Monspeli'e'nsis* (Montpelier). May. Montpelier. 1825.
- *monta'na* (mountain). May. Switzerland.
- *Muhlenbergia'na* (Muhlenberg's). 3. April. N. Amer. 1811.
- *muri'na* (mouse-like). April. Switzerland. 1824.
- *muta'bilis* (changeable). March. Switzerland. 1824.
- *myricoi'des* (gale-like). 8. April. N. Amer. 1811.
- *myrsini'tes* (myrsine-like). 3. May. Scotland.
- *myrtillo'ides* (myrtle-like). 2. May. Sweden. 1772.
- *nerv'o'sa* (large-nerved). April. Switzerland. 1824.
- *ni'gra* (black). 20. May. N. Amer. 1811.
- *ni'gricans* (blackish). 10. April. England.
- *nitens* (shining). 10. April. Scotland.
- *obova'ta* (reversed-egg-leaved). May. N. Amer.
- *obtusifo'lia* (blunt-leaved). April. Lapland. 1816.
- *oleifo'lia* (olive-leaved). 4. March. Britain.
- *pal'lida* (pale). April. Switzerland. 1823.
- *paludo'sa* (marsh). April. Germany.
- *panno'sa* (cloth-leaved). April. Switzerland. 1824.
- *patens* (spreading). 4. April.
- *pa'tula* (spreading). April. Italy. 1818.
- *pedicella'ris* (long-leaf-stalked). 3. March. N. Amer. 1811.
- *Pennsylv'a'nica* (Pennsylvanian). April. N. Amer. 1825.
- *penta'dra* (five-stamened). 15. April. Britain.
- *hermaphrodi'tica* (hermaphrodite). 15. March. Britain.
- *persicifo'lia* (peach-leaved).
- *petiola'ris* (dark-leaf-stalked). 10. April. Scotland.
- *petra'ea* (rock). 7. April. Britain.
- *phillyreifo'lia* (phillyrea-leaved). 5. April. Scotland.
- *planifo'lia* (flat-leaved). 2. Labrador. 1811.
- *pola'ris* (polar). 1. Lapland. 1820.
- *Pomera'nica* (Pomeranian). 10. May. Pomerania. 1822.
- *Pontedera'na* (Pontedera's). 3. May. Switzerland. 1821.
- *prinoï'des* (prinus-like). 10. March. N. Amer. 1811.
- *procu'mbens* (lying-down). ½. June. Scotland.
- *propin'qua* (nearly-related). 8. Britain.
- *Proteafo'lia* (Protea-leaved). April. Switzerland. 1820.
- *prunifo'lia* (plum-leaved). 3. April. Scotland.
- *styl'o-longio're* (longer-styled). 3. April. Scotland.
- *purpu'rea* (purple). 8. March. England.
- *Purshia'na* (Pursh's). May. N. Amer.
- *Pyrena'ica* (Pyrenean). 1. May. Pyrenees. 1823.
- *clita'ta* (hair-fringed). 1. May. Pyrenees.
- *pyrifo'lia* (pear-leaved). April. Switzerland. 1824.
- *radicans* (rooting). May. Britain.
- *ramifu'sa* (spreading-branched). April. Britain.
- *recurva'ta* (curled-back-flowered). 3. April. N. Amer. 1811.
- *reflexa* (bent-back-calysed). March.

- S. reticulata* (netted). $\frac{1}{2}$. June. Britain.
— retusa (blunt-leaved). $\frac{1}{2}$. May. South Europe. 1673.
— rigida (stiff). 15. April. N. Amer. 1811.
— rivularis (river). May. Switzerland. 1824.
— rosmarinifolia (rosemary-leaved). 2. April. Britain.
— rotunda (round-leaved). 15. April. Switzerland. 1824.
— rubra (red. Osier). 8. April. England.
— rupestris (silky-rock). 3. April. Scotland.
— Russelliana (Russell's). 40. April. England.
— salvifolia (sage-leaved).
— Schleicheriana (Schleicher's). April. Switzerland. 1824.
— Schraderiana (Schrader's). 2. May. Germany. 1820.
— septentrionalis (northern). April. Europe.
— sericea (silky). 2. May. Switzerland. 1820.
— serpyllifolia (thyme-leaved). $\frac{1}{2}$. April. Switzerland. 1818.
— Silesiaca (Silesian). 6. May. Silesia. 1816.
— Smithiana (Smith's). 20. April. England.
— soevida (mean). April. Switzerland. 1824.
— spathulata (spatulate). 5. April. Germany. 1818.
— sphacelata (withered-pointed). 2. April. Scotland.
— Starkea (Stark's). April. Europe. 1820.
— stipularis (stipuled). 6. March. England.
— strepida (creaking). April. Switzerland. 1820.
— Stuartiana (Stuart's). 4. July. Scotland.
— subalpina (subalpine). April. Switzerland. 1820.
— tenuifolia (thin-leaved). 2. May. Britain.
— tenuior (slenderer). 15. May. Scotland.
— tetrandra (four-stamened). April. Europe.
— tetrapla (four-fold). 4. March. Scotland.
— Trevirana (Treviranus's). April. Germany. 1825.
— triandra (three-stamened). 30. July. Britain.
— Hoppeana (Hoppe's). 30. May. Austria. 1820.
— tristis (dark-leaved). 4. April. N. Amer. 1765.
— ulmifolia (elm-leaved). 1. April. Switzerland. 1821.
— undulata (waved-leaved). 30. April. England.
— lanceolata (spear-head-leaved). 30. April. England.
— ussuriensis (bearberry-like). $\frac{1}{2}$. April. Labrador. 1811.
— vacciniifolia (bilberry-leaved). 2. April. Scotland.
— Vaudeensis (Vaudois). 3. March. Switzerland. 1824.
— velutina (velvety). April. Europe. 1826.
— versicolor (various-coloured). 2. May. Switzerland.
— Villarsiana (Villars's). 6. April. France. 1818.
— villosa (shaggy). 2. April. Switzerland.
— viminatis (twiggy. Common Osier). 12. April. England.
— virescens (greenish-leaved). 8. April. Switzerland.
— virgata (twiggy). 1 $\frac{1}{2}$. May.
— vitellina (yellow-branched). 15. March. England.
— Waldsteiniana (Waldstein's). 4. April. Alps, Tyrol.
— Weigelia (Weigel's). 10. Britain.
— Willdenowiana (Willdenow's). May.
— Woolgaria (Woolgar's). 12. April. England.
— Wulfeniana (Wulfen's). 6. May. Carinthia. 1818.

SA'LMEA. (Named after the Prince Salm Dyck. Nat. ord., *Compositae* [*Asteraceae*]. Linn., 19-Syngenesia 1-*Æqualis*. Allied to *Bidens*.)

Stove evergreen twiners. Cuttings of firm, stubby side-shoots in sand, under a bell-glass, in bottom-heat; rich, fibry loam. Winter temp., 48° to 58°; summer, 60° to 85°.

S. eupatoria (eupatorium-like). White. April. S. Amer. 1815.

— hirsuta (hairy). 6. Yellow. August. Jamaica. 1823.

— scandens (climbing). 6. Yellow. June. Vera Cruz. 1820.

SALPIA'NTHUS. (From *salpinx*, a tube, or trumpet, and *anthos*, a flower; referring to the coloured calyx, which is tubular in all the plants in this order. Nat. ord., *Nyctagoe* [*Nyctagynaceae*]. Linn., 5-Pentandria 1-Monogynia. Allied to the Marvel of Peru.)

Cuttings in sand, under a glass, in heat; peat and loam. Winter temp., 55° to 60°; summer, 60° to 80°.

S. fragrans (sweet-scented). 20. White, orange. May. Chili. 1844. Greenhouse evergreen.

— lanceolata (spear-head-leaved). 3. Purple. June. W. Ind. 1824. Stove evergreen.

— purpurascens (purplish). Variegated. June. Cuba. 1830. Stove herbaceous.

SALPICHLÆ'NA. (From *salpinx*, a tube, and *chlaina*, a cloak; the covering of the spore-cases. Nat. ord., *Ferns* [*Polypodiaceae*]. Linn., 24-Cryptogamia 1-Filices.)

Stove Fern. See FERNS.

S. volubilis (twining). Yellow, brown. July. Brazil. 1842.

SALPICHERO'A. (From *salpinx*, a tube, and *chroa*, colour; coloured tube. Nat. ord., *Nightshades* [*Solanaceae*]. Linn., 5-Pentandria 1-Monogynia.)

Greenhouse evergreen shrub. Cuttings of half-ripened shoots in sand, under a bell-glass; peat and loam. Winter temp., 45° to 50°.

S. glandulosa (glandulous). Yellow. July. Chili. 1844.

SALPIGLO'SSIS. (From *salpinx*, a tube, and *glossa*, a tongue; refers to the style in the tube of the flower. Nat. ord., *Fig-worts* [*Scrophulariaceae*]. Linn., 14-Didynamia 2-Angiospermia.)

Annuals and biennials, from Chili; do best when sown in autumn and spring, for early spring and summer blooming. *Strami'nea*, sown in spring in a gentle hotbed, will bloom freely in summer and autumn in the greenhouse; rich, light soil.

S. sinuata (scalloped). 1. Purple. August. 1824. Biennial.

— picta (painted). 5. Variegated. May. 1820. Annual.

— strami'nea (straw-coloured). 1 $\frac{1}{2}$. Red; white. July. 1824. Annual.

SALPIXA'NTHA. (From *salpinx*, a tube, and *anthos*, a flower. Nat. ord., *Acanthads* [*Acanthaceae*]. Linn., 14-Didynamia 2-Angiospermia. Allied to *Ruellia*.)

Stove evergreen shrub. Cuttings of young shoots in spring and summer, in sandy soil, in a hotbed;

loam and peat, with a little old dung, such as that from a spent mushroom-bed. Winter temp., 45° to 55°; summer, 60° to 85°.

S. coccinea (scarlet). 3. Scarlet, rose. September. Jamaica. 1844.

SALSIFY. *Tragopogon porrifolius*.

Soil.—Light and moderately fertile.

At the time of sowing trench it, turning in a little manure with the bottom-spit only.

Sow in March and April, in an open situation, in shallow drills, nine inches asunder, scatter the seeds thinly, and cover them half an inch deep. When the plants are two or three inches high, thin to ten inches asunder. During very dry weather water occasionally very plentifully, and if half an ounce of guano is added to each gallon of water it will be very beneficial. They will have large roots by September or October, when you begin taking them up for use; and in November, when the leaves begin to decay, a quantity may be preserved in sand for use in time of severe frost; but those left in the ground will not be injured. In spring, when those remaining in the ground begin to vegetate, the shoots, when a few inches high, may be cut for use as asparagus, being excellent when quite young and tender. Suffer a few plants to run up to stalk every spring to produce seed. The best mode of cooking the roots is to boil and mash them, form them into cakes, and fry them in butter. The flavour is that of oyster patties.

SALTS. Saline manures are generally beneficial, and often essential. They ought to be put on in very small quantities, and frequently, during the time of the plant's growth.

Common Salt.—Chloride of sodium, applied in the spring at the rate of twenty bushels per acre, has been found very beneficial to asparagus, broad beans, lettuces, onions, carrots, parsnips, potatoes, and beets. Indeed, its properties are so generally useful, not only as promoting fertility, but as destroying slugs, &c., that it is a good plan to sow the whole garden every March with this manure, at the rate above specified. The flower-garden is included in this recommendation; for some of the best practical gardeners recommend it for the stock, hyacinth, amaryllis, ixia, anemone, colchicum, narcissus, ranunculus, &c.; and in the fruit-garden it has been found beneficial to almost every one of its tenants, especially

the cherry and apple. On lawns and walks it helps to drive away worms, and to destroy moss.

Ammonia.—The salts of ammonia are highly stimulating, and afford, by their ready decomposition, abundant food to plants. The dungs of animals are fertilizing exactly in proportion to the amount of ammonia in them. The only care required is not to apply them too abundantly. Half an ounce to each gallon of water, given at the most twice a week, is a good recipe for all the ammoniacal salts. The ammoniacal gas liquor, at the rate of one pint to two gallons of water, is highly beneficial to all plants grown for their leaves.

Chalk (Carbonate of Lime) may be applied in large quantities, twenty or thirty tons per acre, to render a light siliceous soil more retentive, or a heavy soil more open. Its basis, lime, enters into the composition of most plants in some state of combination. If the chalk is to be burnt into lime before it is applied, care should be taken that it does not contain, like some of the Yorkshire chalks, a large proportion of carbonate of magnesia. Magnesia remains long in a caustic state, and has been found injurious to the plants to which it has been applied.

Chloride of Lime gradually gives out a portion of its chlorine, and is converted into muriate of lime, a salt absorbing moisture from the air, which can hardly exist in any soil, however light, without keeping it moist; and its nauseous odour may be found to keep off the attacks of the fly and other vermin. A solution containing one ounce in five gallons of water is said to destroy the aphids and the caterpillar, if poured over the trees they infest.

Gas Lime is a hydro-sulphuret of lime, with a little ammonia. It is an excellent manure, especially to cabbages, turnips, cauliflowers, and brocoli, dug in at the time of planting or sowing. If sown over the surface at the time of inserting the crop, at the rate of twenty bushels per acre, it will effectually drive away the turnip-fly, slug, &c.

Gypsum, or Plaster of Paris, is sulphate of lime. It has been found very useful as a top-dressing to lawns, and dug in for turnips and potatoes. Three hundred weight per acre is abundance.

Nitrates of Potash (Saltpetre), and of

Soda (Cubic Petre), have been found beneficial to carrots, cabbages, and lawns. One pound to a square rod of ground is a sufficient quantity. Both these nitrates have been found beneficial to potatoes in Scotland. Mr. Murray says, that from 1810 down to the present time he has been in the habit of watering pinks and carnations with solutions of these two nitrates, and the benefit has been uniform and eminent in promoting their luxuriance.

They have also been given in solution with great benefit to chrysanthemums, lettuces, celery, fuchsias, and dahlias: one pound to twelve gallons of water. Nitrate of soda destroys slugs.

Phosphate of Lime.—See BONES.

Super-Phosphate of Lime.—Chrysanthemums were much increased in vigour when watered with a solution of this salt in the Chiswick Garden, at the end of July. It is thought, if the application had been made earlier, the benefit would have been still more marked.

SALT-TREE. *Halimodendron*.

SALVIA. Sage. (From *salvo*, to save; medicinal qualities. Nat. ord., *Lipworts* [Lamiaceæ]. Linn., 2-*Diandria* 1-*Monogynia*.)

Annuals and biennials, seeds in the open border; herbaceous perennials, by division at the roots in spring; shrubs, by cuttings inserted firmly in the ground in autumn or spring, like the common Sage; greenhouse and stove species, by cuttings of the young shoots at all seasons except winter, only the stove kinds like a little heat; rich, light, good soil. See CLARY and SAGE.

STOVE ANNUALS.

- S. lanceolata* (spear-head-leaved). 1. Blue. July. W. Ind. 1813.
- *micrantha* (small-flowered). 1. Blue. May. Cuba. 1823.
- *rhombifolia* (diamond-leaved). Blue. Peru. 1827.
- *tene'lla* (slender). Blue. June. Jamaica. 1821.

HARDY BIENNIALS AND ANNUALS.

- S. æthiops* (Ethiopian). 3. White. May. Austria. 1570.
- *Byzanti'na* (Turkey). 1. Blue. July. Turkey. 1825.
- *ceratophylla* (buckhorn-leaved). 2. Yellow. July. Persia. 1699.
- *ceratophylloides* (buckhorn-leaved-like). 1. Yellow. July. Egypt. 1771.
- *erosa* (bitten-leaved). 1. Blue. July. Europe. 1817. Annual.
- *foliosa* (leafy). 1½. Blue. All seasons. Mexico. 1827. Greenhouse biennial.
- *hirsuta* (hairy). 1. Blue. May. 1801. Annual.
- *Hispanica* (Spanish). 1½. Blue. July. Spain. 1739. Annual.
- *horminum* (horminum). 1½. Purple. June. South Europe. 1596. Annual.
- *rubra* (red-topped). 1½. Red. July. South Europe. 1596.

- S. horminum violacea* (purple-topped). 1½. Purple. June. South Europe. 1596.
- *nepetifolia* (cat-mint-leaved). 1. Blue. July. Europe. 1823. Annual.
- *Nilotica* (Nile). 1. Blue. July. Egypt. 1780.
- *phlomoïdes* (phlomis-like). 2. Blue. May. Spain. 1805.
- *pinna'ta* (leafleted). 1. Purple. July. Levant. 1731.
- *sclarea* (common. Clary). 4. White, purple. August. South Europe. 1562.
- *spino'sa* (thorny-calysed). 1. White. June. Egypt. 1789.
- *Tingita'na* (Tangier). 3. White. July. Barbary. 1796.
- *viridis* (green-topped). 1½. Blue. July. Italy. 1759. Annual.

GREENHOUSE AND STOVE EVERGREENS.

- S. Africa'na* (African). 2. Violet. May. Cape of Good Hope. 1734.
- *agglutina'ta* (clammy). Scarlet. June. New Spain. 1827.
- *amethystina* (amethyst-coloured). 2. Blue. August. Columbia. 1817. Stove.
- *aur'ea* (golden). 3. Blue. July. Cape of Good Hope. 1731.
- *aurita* (eared-leaved). 2. Lilac, yellow. May. Cape of Good Hope. 1795.
- *Canariensis* (Canary). 4. Purple. July. Canaries. 1697.
- *chamædryoides* (germander-like). 1½. Blue. July. Mexico. 1795.
- *confertiflora* (crowded-flowered). 3. Red. August. Rio Janeiro. 1838. Stove.
- *Cre'tica* (Cretan). ½. Violet. June. Crete. 1760.
- *denta'ta* (tooth-leaved). ½. White. December. Cape of Good Hope. 1774.
- *dolichostachya* (long-spiked). 6. Scarlet. August. Mexico. 1820.
- *e'legans* (elegant). 4. Cream. July. Mexico. 1820.
- *formosa* (beautiful). 4. Scarlet. June. Peru. 1783.
- *fulgens* (brilliant). 5. Scarlet. July. Mexico. 1829.
- *Gesneræfolia* (Gesnera-flowered). 3. Scarlet. March. 1846. Stove.
- *involuta'ra* (involucered). 2. Red. August. Mexico. 1824. Stove.
- *lamiifolia* (lamium-leaved). 2. Blue. July. S. Amer. 1821.
- *occidentalis* (western). 1½. White. July. Jamaica. 1824. Stove.
- *odora'ta* (sweet-scented). 3. White. July. Bagdad. 1804.
- *panicula'ta* (panicled). 6. Violet. July. Cape of Good Hope. 1758.
- *pu'tens* (spreading). 10. Blue. September. Mexico. 1838.
- *rosæfolia* (rose-leaved). Purple. July. Levant. 1827.
- *runcinata* (runcinate-leaved). 2. Blue. July. Cape of Good Hope. 1774.
- *sca'bra* (scaly). 2. Blue. June. Cape of Good Hope. 1774.
- *strictiflora* (erect-flowered). 3. Brown, red. December. Peru. 1831. Stove.

GREENHOUSE HERBACEOUS.

- S. amarissima* (bitterest). 2. Blue. August. Mexico. 1803.
- *angustifolia* (narrow-leaved). 2. Blue. May. Mexico. 1816.
- *cæ'sia* (grey). 2. Blue. July. S. Amer. 1813.
- *coccinea* (scarlet-flowered). 2. Scarlet. July. S. Amer. 1772.

- S. desertorum* (desert). 2½. Blue. October. Siberia. 1829.
 — *Grahami* (Graham's). 4. Purple, blue. September. Mexico. 1829.
 — *leucantha* (white-flowered). 2. White. Mexico. 1825.
 — *Mexicana* (Mexican). 2. Scarlet. June. Mexico. 1824. Stove.
 — *Nubia* (Nubian). 2. Blue. June. Abyssinia. 1784.
 — *nubiola* (cloudy). 3. Yellow. October. Neapaul. 1823.
 — *oppositifolia* (opposite-flowered). Orange, red. November. Peru. 1847. Stove.
 — *polystachya* (many-spiked). 3. Blue. October. Mexico. 1822.
 — *praecox* (early-flowering). Purple. March. Africa. 1826.
 — *pulchella* (pretty). 2. Scarlet. December. S. Amer. 1821.
 — *purpurea* (purple). 2½. Purple. June. Mexico. 1825.
 — *ringens* (gaping). 2. Blue. July. Levant. 1827.
 — *rugosa* (wrinkled-leaved). 2. White, red. July. Cape of Good Hope. 1775.
 — *serotina* (late-flowering). 1½. Blue. August. Ohio. 1803.
 — *splendens* (splendid). 3. Scarlet. December. Mexico. 1822.
 — *tiliaefolia* (lime-tree-leaved). 4. Blue. May. Caraccas. 1793. Stove.
 — *tubifera* (tube-bearing). 3. Red. August. Mexico. 1824.
 — *tubiflora* (tube-flowered). 4. Scarlet. June. Mexico. 1820.
 — *tubiformis* (tube-shaped). Scarlet. June. Mexico. 1844.

HARDY EVERGREENS.

- S. calycina* (large-calixed). 1. Pink. August. Greece. 1823.
 — *Habitziana* (Habliz's). White, red. August. Tauria. 1759.
 — *interrupta* (interrupted-leaved). 4. White. July. Barbary. 1790.
 — *lavandulifolia* (lavender-leaved). Blue. March. Spain. 1597.
 — *officinalis* (shop. Common). 1. Blue. June. South Europe. 1597.
 — *tenuior* (slenderer). 1. Blue. June. Spain. 1597.
 — *variegata* (variegated). 1. Blue. June. South Europe. 1597.
 — *pomifera* (apple-bearing). 2. Blue. July. Candia. 1699.
 — *scorodonifolia* (wood-sage-leaved). 2. White. July. 1825.

HARDY HERBACEOUS.

- S. argentea* (silvery). 3. Yellow. June. Crete. 1759.
 — *Austriaca* (Austrian). 1. Cream. June. Austria. 1776.
 — *azurea* (azure). 6. Blue. August. N. Amer. 1806.
 — *Barrelieri* (Barrelier's). 3. Blue. April. Spain. 1821.
 — *bicolor* (two-coloured). 2. Red, white. June. Barbary. 1793.
 — *bracteata* (long-bracted). 3. Purple. March. Russia. 1821.
 — *candidissima* (whitest). 2. White. Armenia. 1820.
 — *cane-scens* (hoary). 2. Purple. July. Caucasus.
 — *carduacea* (thistle-leaved). 1½. Purple. California Proper. July.
 — *clandestina* (clandestine). ¾. Blue. June. Italy. 1739.
 — *multifida* (many-cleft). ¾. Blue. April. Europe. 1822.

- S. compressa* (compressed). 2. White. May. E. Ind. 1822.
 — *crassifolia* (thick-leaved). 2. Blue. June. South Europe. 1804.
 — *disermas* (two-glumed). 2. White. July. Syria. 1773.
 — *Forskohlii* (Forskohl's). 1½. Blue. July. Levant. 1800.
 — *glutinosa* (glutinous). 3. Yellow. July. Germany. 1769.
 — *grandiflora* (large-flowered). 2. Blue. July. South Europe. 1816.
 — *hians* (gaping). 1. Blue. June. Cashmere. 1839.
 — *Indica* (Indian). 3. Blue. June. India. 1731.
 — *limbata* (bordered). Russia. 1838.
 — *Linkiana* (Link's). Blue. July. Levant. 1823.
 — *Lusitanica* (Portuguese). 1½. Blue. June. Spain. 1819.
 — *lyrata* (lyre-leaved). 1. Purplish. June. N. Amer. 1828.
 — *Moorcroftiana* (Moorcroft's). 3. Pale blue. India.
 — *napiifolia* (rape-leaved). 2. Dark blue. June. Italy. 1776.
 — *nutans* (nodding). 2. Violet. July. South Europe. 1780.
 — *pratensis* (meadow). 4. Violet. May. England.
 — *prunelloides* (self-heal-like). ¾. Blue. June. Mexico. 1838.
 — *pseudococcinea* (bastard-scarlet). 3. Scarlet. July. S. Amer. 1797.
 — *Pyrenaica* (Pyrenean). 4. Blue. July. Pyrenees. 1824.
 — *regia* (regia). 5. Scarlet. July. Mexico. 1739.
 — *scabiosifolia* (scabious-leaved). 1. White. August. Siberia. 1818.
 — *sclareoides* (clary-like). Violet. July. South Europe. 1804.
 — *Sibthorpii* (Sibthorp's). Blue. June. Europe. 1813.
 — *Simsiana* (Sims's). 3. Pale blue. June. Russia. 1820.
 — *sylvestris* (wood). 2. Purple, violet. August. Germany. 1759.
 — *Syrriaca* (Syrian). 1½. White. July. Levant. 1759.
 — *triloba* (three-lobed). 2. Red. June. South Europe. 1596.
 — *urticifolia* (nettle-leaved). 3. Blue. June. N. Amer. 1799.
 — *verbascifolia* (mullein-leaved). 3. White. May. Iberia. 1823.
 — *verbenaeca* (vervain-like). 2. Violet. August. Britain.
 — *oblongifolia* (oblong-leaved). 1½. Blue. September. Europe. 1820.
 — *versicolor* (parti-coloured). 1½. Blue, white. July. Spain. 1822.
 — *verticillata* (whorl-flowered). 3. Blue. August. Germany. 1628.
 — *virgata* (twiggy). 4. White. September. America. 1758.
 — *viscosa* (clammy). 1½. Violet. May. Italy. 1773.

SAMBU'CUS. Elder-tree. (From *sambuca*, a musical instrument, made of elder-wood. Nat. ord., *Caprifoliaceae* [Caprifoliaceae], Linn., 5-Pentandria 3-Trigynia.)

Hardy plants, and all white-flowered, except where otherwise mentioned. Generally by cuttings of ripened wood, either of one or several years of age. Common, rich, light soil.

HARDY HERBACEOUS.

- S. Chineensis* (Chinese). 4. September. China. 1823.
 — *ebulus* (dwarf). 3. White, red. June. Britain.
 — *humilis* (lowly). 2. White, pink. June.

HARDY DECIDUOUS SHRUBS.

- S. Canadensis* (Canada). 6. July. N. Amer. 1761.
 — *ni'gra* (black-fruited). 15. June. Britain.
 — *foliis-argenteis* (white - variegated - leaved). 25. June. Britain.
 — *foliis-luteis* (yellow-variegated-leaved). 25. June. Britain.
 — *lacinia'ta* (cut. Parsley-leaved). 25. June. Britain.
 — *lacinia'ta au'rea* (cut-yellow-striped). 25. June. 1848.
 — *leucoca'rpa* (white-berried). 25. June. Britain.
 — *monstro'sa* (monstrous-striped-barked). 25. June. Britain.
 — *puberule'nta* (powdered). 10. June. Britain.
 — *rotundifo'lia* (roundish-leaved). 25. June. Britain.
 — *vire'scens* (greenish). 25. June. Britain.
 — *pubens* (downy). 5. N. Amer. 1812.
 — *racemo'sa* (racemed). 12. Green, yellow. May. South Europe. 1596.
 — *flave'scens* (yellowish). 12. Yellow, green. May. South Europe. 1596.
 — *purpu'rea* (purple). 12. Purple. May. South Europe. 1596.

SAMOLUS. Brookweed. (From the Celtic *sau*, salutary, and *mos*, a pig; meaning pigs'-food. Nat. ord., *Primeworts* [Primulacæ]. Linn., 5-*Pentandria* 1-*Monogynia*.)

White-flowered herbaceous perennials. Division of the plant in spring; sandy loam and peat. *Valera'ndi* is hardy; the others require to be kept moist in the greenhouse or pit in winter. *S. campanulo'id'es* (campanula-like). 1. July. Cape of Good Hope. 1816.
 — *litora'lis* (sea-side). $\frac{1}{2}$. August. N. S. Wales. 1806.
 — *Valera'ndi* (Valerandi's). $\frac{1}{2}$. July. Britain.

SAMPHIRE. See **CRITHMUM.**

SAMY'DA. (Greek name of the birch, which they resemble. Nat. ord., *Samyds* [Samydacæ]. Linn., 10-*Decandria* 1-*Monogynia*.)

Stove, white-flowered, evergreen shrubs. Cuttings of shoots nearly ripe in sand, under a bell-glass, and placed in bottom-heat, in summer; fibry loam, and sandy, fibry peat. Winter temp., 50° to 60°; summer, 60° to 85°.

- S. glabra'ta* (smooth). 6. August. W. Ind. 1800.
 — *macroca'rpa* (large-fruited). July. Mexico. 1826.
 — *macrophy'lla* (large-leaved). 5. E. Ind. 1820.
 — *ro'sea* (rosy). 4. Pink. June. W. Ind. 1793.
 — *serrula'ta* (toothed-leaved). 3. July. W. Ind. 1723.

SANDAL WOOD. *Sa'ntalum.*

SAND-BOX-TREE. *Hu'ra.*

SAND WOOD. *Bremontie'ra ammo'xylon.*
SANGUINA'RIA. Puccoon. (From *sanguis*, blood; their red juice. Nat. ord., *Poppyworts* [Papaveracæ]. Linn., 13-*Polyandria* 1-*Monogynia*.)

Hardy, tuberous, white-flowered perennials, from North America. Division of the roots, or by seeds in spring; light, loamy soil.

- S. Canadensis* (Canadian. *Bloodwort*). $\frac{1}{2}$. March. N. Amer. 1680.
 — *grandifo'ra* (large-flowered). May. N. Amer.

SANGUISO'RBA. Burnet. (From *sanguis*, blood, and *sorbeo*, to absorb; supposed an active vulnerary. Nat. ord., *Roseworts* [Rosacæ]. Linn., 4-*Tetrandria* 1-*Monogynia*.)

Hardy herbaceous perennials. Division of the roots, and by seeds in spring; common garden-soil. See **BURNET.**

- S. alpi'na* (alpine). Yellow. June. Altai. 1837.
 — *Anderso'nii* (Anderson's). Pink. July. Siberia.
 — *Canadensis* (Canadian). 3. White. August. Canada. 1633.
 — *ca'rnea* (flesh-coloured). 4. Red. July. Siberia. 1823.
 — *Maurita'nica* (Mauritanian). 4. Pink. July. Algiers. 1810.
 — *me'dia* (middle). 4. Flesh. August. Canada. 1785.
 — *negle'ta* (neglected). 4. White. July. Europe. 1890.
 — *officina'lis* (shop). 4. Purple. July. Britain.
 — *auricula'ta* (eared). 4. Pink. July. Sicily.
 — *pra'cox* (early-flowering). 3. Pink. May. Siberia. 1827.
 — *tenuifo'lia* (fine-leaved). 4. Pink. July. Dahuria. 1820.

SANSEVIE'RA. (Named after *Sansevier*, a Swedish botanist. Nat. ord., *Lilyworts* [Liliacæ]. Linn., 6-*Hexandria* 1-*Monogynia*. Allied to *Phormium*.)

Stove herbaceous perennials, white-flowered, except where otherwise mentioned. Suckers in spring, or when obtainable, and division of the plant. Most of them require a plant-stove, or a warm greenhouse, to grow them well, and these tender ones must have little water when in a comparatively dormant state in winter; light, fibry loam and vegetable mould. *Ca'rnea* is hardy.

- S. ca'rnea* (flesh-coloured). $\frac{1}{2}$. Flesh. April. China. 1792.
 — *ensifo'lia* (sword-leaved). 1. E. Ind.
 — *fulvocin'clea* (tawny-edged). 1. Brazil. 1820.
 — *glau'ca* (milky-green). 2.
 — *grandicu'spis* (large-pointed). 3.
 — *Guine'e'nsis* (Guinea). 2. Green. September. Guinea. 1790.
 — *la'tevi'rens* (lively-green). 2. White, green.
 — *lanugino'sa* (woolly). 2. E. Ind.
 — *longifo'ra* (long-flowered). 2. July. Africa. 1824.
 — *polyphy'lla* (many-leaved). 2.
 — *pu'mila* (dwarf). 1. Cape of Good Hope. 1796.
 — *spica'ta* (spiked). 2. E. Ind. 1790.
 — *stenophy'lla* (narrow-leaved). 3. 1818.
 — *Zeyla'nica* (Ceylon). 2. White, green. September. Ceylon. 1731.

SANTALUM. Sandal Wood. (From the Persian *sandul*, signifying useful. Nat. ord., *Sandalworts* [Santalacæ]. Linn., 4-*Tetrandria* 1-*Monogynia*.)

Stove evergreens. Cuttings of firm young shoots in sand, under a bell-glass, in heat; sandy, fibry loam and peat, with nodules of charcoal. Winter temp., 50° to 55°; summer, 60° to 85°.

- S. al'bum* (white-wooded). 10. Purple. E. Ind. 1804.
 — *myrtifo'tium* (myrtle-leaved). 4. Red. E. Ind. 1804.
 — *obtusifo'tium* (blunt-leaved). 5. Red. N. Holland. 1823.

SANTOLI'NA. Lavender Cotton. (From

sancus, holy, and *linum*, flax; refers to fancied medicinal qualities. Nat. ord., *Compositæ* [Asteraceæ]. Linn., 19-Syngenesia 1-Æqualis.)

Hardy, yellow-flowered evergreens. Cuttings in autumn or spring, in a shady place; common soil.

S. alpina (alpine). July. South Europe. 1798.

— *canescens* (hoary). July. Spain. 1683.

— *chamæ-cyparissus* (ground-cypress). 2. July. South Europe. 1573.

— *pectinata* (comb-leaved). 2. July. Spain. 1622.

— *rosmarinifolia* (rosemary-leaved). 2. August. South Europe. 1683.

— *squarrosa* (spreading). 1½. July. South Europe. 1570.

— *viridis* (dark-green). 2. July. South Europe. 1727.

SANVITA'LIA. (Named after a Spaniard. Nat. ord., *Compositæ* [Asteraceæ]. Linn., 19-Syngenesia 2-Superflua.)

Hardy annual. Seeds in a slight hotbed, in March, or in the open ground at the end of April. A trailing annual, well-fitted for edgings.

S. procumbens (trailing). 1. Yellow. July. Mexico. 1798.

SAOUARI or SUWARROW NUT. *Caryocarp.*

SAPONARIA. Soapwort. (From *sapo*, soap; the bruised leaves of *S. officinalis* form a lather like soap. Nat. ord., *Cloves* [Caryophyllaceæ]. Linn., 10-Decandria 2-Digynia. Allied to *Silene*.)

S. Calabrica and *ocymoides* are two of the prettiest flower-garden plants in this order. Seeds of the annuals in open border, in April; division of the perennials, and cuttings of the points of the shoots, in a sandy soil, under a hand-light; sandy loam, with a little peat or decayed vegetable earth. *Ocymoides* and several other trailing kinds are pretty hanging over knolls or rock-works.

HARDY ANNUALS.

S. Calabrica (Calabrian). ½. Rose. August. Calabria. 1830.

— *cerastoides* (cerastium-like). ½. Pink. Russia. 1835.

— *glutinosæ* (clammy). 1. Pink. June. Tauria. 1817. Biennial.

— *orientalis* (eastern). 1. Pink. July. Levant. 1732.

— *perfoliata* (leaf-stem-pierced). 2. Pink. June. E. Ind. 1830.

— *porrigens* (stretching). 1. Flesh. July. Levant. 1680.

— *vaccaria* (cow-herb). 2. Red. July. Germany. 1596.

— *viscosa* (clammy). 1. 1836.

HARDY HERBACEOUS.

S. bellidifolia (daisy-leaved). ½. Red. July. Italy. 1825.

— *caespitosa* (turfy). ½. Red. July. Pyrenees. 1820.

— *elegans* (elegant). Red. May. Galatia.

— *lutea* (yellow). ½. Yellow. July. Switzerland. 1804.

— *ocymoides* (basil-like). ½. Pink. June. France. 1768.

— *officinalis* (shop). 2. Pink. July. England.

— *hybrida* (hybrid). Pink. England.

— *prostrata* (lying flat). Rose. July. Pyrenees. 1824.

SAPPAN WOOD. *Cæsalpinia sappan*.

SARCA'NTHUS. (From *sarz*, flesh, and *anthos*, a flower; substance of the flowers. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-Gynandria 1-Monandria.)

Stove orchids, grown in baskets. See ORCHIDS. *S. croceus* (saffron-coloured). Saffron. Manilla. 1837.

— *filiformis* (thread-like-leaved). Brown, yellow.

July. E. Ind. 1842.

— *guttatus* (spotted). 1. White. April. Ro Dacca. 1818.

— *oxyphyllus* (sharp-leaved). China. 1837.

— *palidus* (pale-flowered). White. September. E. Ind. 1840.

— *paniculatus* (panicled). 2½. Yellow, brown. China.

— *præmorsus* (bitten). 1. Green. E. Ind. 1824.

— *rostratus* (beaked). 1. Orange, brown. April. China. 1824.

— *succus* (lopped-off). 1. Green. June. China. 1824.

— *teretifolius* (cylindric-leaved). 1½. Green, brown. May. China. 1819.

SARCOCAU'LON. This is a synonyme of **MONSONIA.**

The following species, all purple-flowered, and from the Cape of Good Hope, should be added to that genus:—

S. Burmanni (Burmans'). 1. May. 1800.

— *Heritieri* (L'Heritier's). 1. May. 1790.

— *Patersonii* (Paterson's). 2½. May. 1827.

SARCOCE'PHALUS. Guinea Peach. (From *sarz*, flesh, and *kephale*, a head; shape and substance of the fruit. Nat. ord., *Cinchonads* [Cinchonaceæ]. Linn., 5-Pentandria 1-Monogynia.)

Cuttings in spring, in bottom-heat, under a glass. Stove evergreen, requiring a high, moist temperature when growing; sandy loam, fibry peat, with a little rough charcoal, and good drainage. Winter temp., 55° to 60°; summer, 60° to 85°.

S. esculentus (eatable). 15. Pink. July. Sierra Leone. 1822.

SARCOCH'LUS. (From *sarz*, flesh, and *cheilos*, a lip; fleshy labellum. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-Gynandria 1-Monandria.)

Stove orchids, grown on blocks. See ORCHIDS.

S. calceolus (slipper). White. Manilla. 1844.

— *croceus* (reddish-yellow). White, orange. Manilla.

— *falcatus* (sickle-leaved). White. April. N. Holland. 1821.

SARCOGLO'TTIS. (From *sarz*, flesh, and *glottis*, a tongue; shape of the labellum. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-Gynandria 1-Monandria. Allied to *Spiranthes*.)

Stove orchids, grown in pots. (See ORCHIDS.) Some of the *Neottias* are by some botanists added to this genus.

S. diuretica (diuretic). Green, white. April. Valparaiso. 1837.

SARCO'LOBUS. (From *sarz*, flesh, and

lobos, a pod; seed-vessel fleshy. Nat. ord., *Asclepiads* [Asclepiadaceæ]. Linn., 5-Pentandria 2-Digynia. Allied to *Perularia*.)

Stove evergreen twiners, from the East Indies. Cuttings of short, firm side-shoots any time in summer, in sandy soil, under a bell-glass, and in a brisk bottom-heat; fibry loam and peat, with a small quantity of charcoal, dried leaf-mould, and silver sand. Winter temp., 50° to 55°; summer, 60° to 88°.

S. carinata (keeled). 16. Green, yellow. 1823.
— *globosus* (globe-fruited). 16. White. 1823.

SARGOSTE'MMA. (From *sarz*, flesh, and *stemma*, a crown; fleshy flower-head. Nat. ord., *Asclepiads* [Asclepiadaceæ]. Linn., 5-Pentandria 2-Digynia.)

Stove evergreen twiners. Cuttings of the points of shoots in sand, under a bell-glass, and in bottom-heat; but care must be taken to raise the glass often, to prevent damping; sandy peat and fibry loam, a small portion of charcoal, leaf-mould, and sand. Winter temp., 45° to 55°; summer, 60° to 80°.

S. campanulata (bell-flowered). 6. Yellow, brown. September. Peru. 1844.

— *Swartzianum* (Swartz's). 6. White. Jamaica. 1820.

— *viminale* (twiggy). 6. White. July. E. Ind. 1731.

SARRACE'NIA. Side-saddle Flower. (Named after *Dr. Sarrasin*, a French physician. Nat. ord., *Sarraceniads* [Sarraceniaceæ]. Linn., 13-Polyandria 1-Monogynia.)

Half-hardy herbaceous perennials, from North America. Division in spring; fibry peat and chopped sphagnum-moss; a pit or frame will be necessary for their cultivation, to keep them from frost in winter, and to afford them a close, humid atmosphere in summer.

S. Drummondii (Drummond's). 2. Purple. June. 1829.

— *flava* (yellow). 2. Yellow. June. 1752.

— *minor* (smaller). 2. Purple, green. April. 1829.

— *purpurea* (purple). 1. Purple. June. 1640.

— *rubra* (red). 1. Purple. June. 1786.

— *variolaris* (pimpled). 1. Yellow. June. 1803.

SASSAFRAS. *Laurus sa'ssafras*.

SATIN WOOD. *Chloroxylon*.

SATURE'IA. Savory. (From the Arabic *sattar*, applied to labiates. Nat. ord., *Labiates* or *Lipworts* [Lamiaceæ]. Linn., 14-Didynamia 1-Gymnospermia.)

Seeds and divisions in spring; common, sandy loam. See SAVORY.

HARDY HERBACEOUS, &c.

S. hortensis (summer-garden). 1½. Pink. July. Italy. 1562. Annual.

— *mollis* (soft). ½. White. July. Teneriffe. 1829.

— *montana* (winter-mountain). 1½. Purple. June. South Europe. 1562.

— *rupestris* (rock). 1. Purple. June. Car-niola. 1798.

HARDY EVERGREENS.

S. mu'tica (awned). June. Caucasus. 1836.

— *nerve'sa* (nerred). 1. Purple. Ionian Isles. 1820.

S. spinosa (spiny). White. May. Crete. 1827.

— *thymbra* (thymbra). 1. Purple. June. Candia. 1640.

— *virgata* (twiggy). Purple. June. Naples. 1424.

SATY'RUM. (From *satyrus*, a satyr; supposed aphrodisiacal properties. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-Gynandria 1-Monandria.)

Terrestrial orchids, from the Cape of Good Hope, less difficult to cultivate than their allies. We have flowered some of them planted out in a cold frame with *Ixias* and other Cape Irids. Division of the roots as fresh growth is commencing; fibry loam and turfy peat, well drained. Winter temp., 40° to 45°; summer, 55° to 75°.

S. aureum (golden). Orange. August. 1842.

— *caudatum* (white). White. September. 1836.

— *caeruleum* (flesh-coloured). 1½. Pink. June. 1797.

— *chrysostachyum* (golden-spiked). Orange. 1836.

— *coriifolium* (coria-leaved). 1. Yellow. October. 1820.

— *cucullatum* (hooded). 2. Green. June. 1786.

— *erectum* (erect). 1½. Yellow. February. 1836.

— *foliosum* (leafy). Purple. July. 1828.

— *papillosum* (nippled). Rose, purple. 1836.

— *parviflorum* (small-flowered). 2. June. 1789.

— *pustulatum* (pimpled). 1. Purple. 1800.

SAUNDERS WOOD. *Pterocarpus santalinus*.

SAURAU'JA. (Named after *Saurauja*, a Portuguese botanist. Nat. ord., *Dilleniads* [Dilleniaceæ]. Linn., 12-Icosandria 3-Polygynia. Allied to *Hibbertia*.)

Stove evergreen, white-flowered trees and shrubs. Cuttings of ripe shoots in sand, under a bell-glass, in heat, in spring; fibry loam and sandy peat. Winter temp., 50° to 55°; summer, 60° to 80°.

S. excel'sa (tall). 50. Caracass. 1820.

— *macrophylla* (large-leaved). Mexico. 1844.

— *Nepalensis* (Nepalese). 30. August. Nepal. 1824.

— *spectabilis* (showy). 10. July. Bolivia. 1838.

SAUROGLO'SSUM. (From *saura*, a lizard, and *glossa*, a tongue; resemblance to the tongue of that reptile. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-Gynandria 1-Monandria.)

Stove orchid, grown in pots. See ORCHIDS.

S. alatum (tall). 1½. White. April. Brazil. 1832.

SAUSSU'REA. (Named after *H. B. de Saussure*, a Swiss botanist. Nat. ord., *Composites* [Asteraceæ]. Linn., 19-Syngenesia 1-Æqualis. Allied to *Carlina*.)

Hardy herbaceous perennials, and purple-blossomed, except where otherwise mentioned. Seeds and divisions of the plant in spring; common garden-soil.

S. alata (winged). 2. Red. July. Siberia. 1818.

— *alpina* (alpine). 4. July. Britain.

— *amar'a* (bitter). 1½. July. Siberia. 1820.

— *angustifolia* (narrow-leaved). 2. July. Siberia. 1816.

— *crassifolia* (thick-leaved). July. Caucasus. 1824.

— *discolor* (two-coloured). 1. July. Switzerland. 1818.

- S. discolor lapathifolia* (lapathum-leaved). 1. July. Europe. 1816.
 — *elegans* (elegant). Rose. July. Caucasus. 1820.
 — *elongata* (lengthened). 2. July. Caucasus. 1820.
 — *Gmelini* (Gmelin's). July. Siberia. 1827.
 — *laciniata* (jagged-leaved). June. Siberia. 1827.
 — *liatroides* (liatris-like). July. Siberia. 1827.
 — *lyrata* (lyre-leaved). 2. Red. July. Siberia. 1827.
 — *pygmaea* (pigmy). 1. July. Austria. 1816.
 — *rigida* (stiff). July. Siberia. 1827.
 — *runcinata* (runcinate). 2. Red. July. Siberia. 1819.
 — *salicifolia* (willow-leaved). 2. Red. July. Siberia. 1796.
 — *saissa* (salt). 1½. Red. July. Caucasus. 1816.
 — *serrata* (toothed-leaved). July. Europe. 1816.

SAUVAGE'SIA. (Named after F. B. de Sauvages, a French botanist. Nat. ord., *Sauvageads* [Sauvagesiaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*.)

Pretty, tender, violet-looking annuals. Seeds in spring, in a hotbed, pricked out, and potted, and then flowered in the plant-stove or warm greenhouse.

- S. erecta* (upright). 1. Pink. May. S. Amer. 1820.
 — *geminiflora* (twin-flowered). ½. Purple, red. June. Mexico. 1824.

SAVANNAH FLOWER. *Echites suberecta*. SAVIN. *Juni-perus sabina*.

SAVORY. *Satureia montana*, Winter or Perennial Savory. *S. hortensis*, Summer or Annual Savory.

They may be sown in the open ground at the latter end of March or in April, in a light, rich soil; thin the seedlings moderately, and they may either remain where sown, or may be transplanted. Of the Winter Savory, when the seedlings are about two inches high, it is eligible to plant out a quantity of the strongest in moist weather, in nursery rows, six inches asunder, to remain till September or spring following, then to be transplanted with balls where they are finally to remain, in rows a foot asunder. When designed to have the Winter or Summer Savory remain where sown, the seeds may be in shallow drills, either in beds, or along the edge of any bed or border by way of an edging.

By Slips.—In the spring, or early part of summer, the Winter Savory may be increased by slips or cuttings of the young shoots or branches, five or six inches long; plant them with a dibble, in any shady border, in rows six inches asunder, giving occasional waterings, and they will be well rooted by September, when they may be transplanted.

SAVOY. *Bra'ssica oleracea sabauda*.

Varieties.—Yellow, for autumn; Dwarf and Green, and two sub-varieties of these,

the Round and the Oval; Large Green, very hardy. These for winter-standing crops.

Sow at the close of February, the plants of which are ready for pricking out in April, and for final planting at the end of May, for use in early autumn; the sowing to be repeated about the middle of March, the plants to be pricked out in May, for planting in June, to supply the table in autumn and early winter. The main crops must be sown in April and early May, to prick out and plant, after similar intervals, for production in winter and spring.

Planting.—The plants of the first crops should be set out two feet apart each way, but the winter-standing crops are better at two feet by eighteen inches. Water abundantly, if the weather is dry, until the plants are well established.

To save Seed.—Such plants must be selected of the several varieties as are most true to their particular characteristics, and as are not the first to run. These, in open weather, from early in November to the close of February, plant entirely up to the head, in rows two feet and a half each way, each variety as far from the other as possible. They ripen their seed in July and August.

SAW-FLY. See *ATHALIA* and *HYLOTONIA*.

SAWS for garden-pruning must have a double row of teeth, to obviate the tendency to nip, or buckle, that the dampness of green wood and the leverage of the branch occasion. One with a very narrow blade, and one with a handle six feet long, will be found convenient. The face of the wound made by a saw should always be cut smooth with the knife, otherwise the wet lodging on its rough surface occasions decay. See *BILL*.

SAWORT. *Serratula*.

SAXIFRAGA. Saxifrage. (From *saxum*, a stone, and *frango*, to break; supposed power in that disease. Nat. ord., *Saxifragæ* [Saxifragaceæ]. Linn., 10-*Decandria* 2-*Digynia*.)

Seeds, and especially divisions in spring, unless for annuals; sandy loam; the tenderest will repay for a little leaf-mould or peat; suited best for the fronts of borders, the stumps of trees, and for knolls and rock-works.

HARDY ANNUALS, &c.

- S. controuersa* (contrary-turned). ½. May. South Europe. 1824.
 — *flagellaris* (rod-like). ½. Yellow. June. Greenland. 1851. Evergreen trailer.
 — *hederaea* (ivy-leaved). ½. July. Levant. 1752.
 — *irrigua* (watered). 1. June. Tauria. 1817. Biennial.

S. petraea (rock). $\frac{1}{2}$. April. Norway. 1732.
- tridactylites (three-fingered). $\frac{1}{2}$. April. Britain.

HARDY HERBACEOUS PERENNIALS.

S. adscendens (ascending). $\frac{1}{2}$. May. Pyrenees. 1752.
- aestivalis (summer). May. Altai. 1821.
- affinis (kindred). $\frac{1}{2}$. May.
- aizoonides (aizoon-like). $\frac{1}{2}$. Yellow. July. Britain.
- aizoon (aizoon). 1. June. Alps. 1731.
- ajugaefolia (bugle-leaved). 1. June. Pyrenees. 1770.
- altifida (deep-cleft). 1.
- androsacea (androsace-leaved). 1. May. Austria. 1792.
- Aretioides (Aretia-like). $\frac{1}{2}$. Yellow. June. Switzerland. 1826.
- arguta (sharp-notched). $\frac{1}{2}$. May. N. Amer. 1827.
- aspera (rough). $\frac{1}{2}$. Cream. August. Switzerland. 1752.
- biflora (two-flowered). $\frac{1}{2}$. Purple. May. Switzerland. 1820.
- bronchialis (throat). $\frac{1}{2}$. Cream. May. Siberia. 1819.
- bryoides (bryum-like). $\frac{1}{2}$. Cream. June. Switzerland. 1752.
- bulbifera (bulb-bearing). $\frac{1}{2}$. June. South Europe. 1819.
- Burseriana (Burser's). $\frac{1}{2}$. Cream. April. Carniola. 1826.
- caesia (grey). $\frac{1}{2}$. Pale yellow. May. Switzerland. 1752.
- caespitosa (turfy). $\frac{1}{2}$. Cream. May. Wales.
- ceratophylla (horn-leaved). $\frac{1}{2}$. May. Spain. 1804.
- cernua (drooping). $\frac{1}{2}$. July. Scotland.
- ciliata (hair-fringed-leaved). $\frac{1}{2}$. May. India. 1843.
- condensata (dense). $\frac{1}{2}$. May. Scotland.
- cordifolia (heart-leaved). 1. Purple. April. Siberia. 1779.
- cotyledon (cotyledon). $\frac{1}{2}$. June. Alps, Europe. 1856.
- crassifolia (thick-leaved). 1. Purple. April. Siberia. 1765.
- crustata (shelly-edged). $\frac{1}{2}$. June. Switzerland. 1800.
- cuneifolia (wedge-leaved). $\frac{1}{2}$. May. Switzerland. 1768.
- Davurica (Dahurian). $\frac{1}{2}$. June. Siberia. 1809.
- decipiens (deceptive). $\frac{1}{2}$. May. Wales.
- denudata (stripped). $\frac{1}{2}$. May. Scotland.
- diapsotides (diapsensia-like). $\frac{1}{2}$. April. Switzerland. 1825.
- elegans (elegant). Ireland.
- elongata (longish-stalked). 1. April. Scotland.
- eros (gnawed). 1. White, yellow. May. Carolina. 1812.
- hirsuta (hairy). 1. White, yellow. June. N. Amer. 1800.
- exarata (engraved). $\frac{1}{2}$. May. South Europe. 1800.
- ferruginea (rusty). $\frac{1}{2}$. September. N. Amer. 1827.
- geranioides (crane's-bill-like). $\frac{1}{2}$. April. Pyrenees. 1770.
- geum (geum). 1. June. Ireland.
- crenata (scalloped). 1. May.
- dentata (toothed). 1. May. Ireland.
- polita (polished). 1. May. Ireland.
- granulata (grain-rooted). 1. May. Britain.
- plena (double-flowered). 1. May.
- Haworthii (Haworth's). May. Europe.

S. hieracifolia (hawkweed-leaved). $\frac{1}{2}$. May. Hungary. 1789.
- hirculus (hirculus). $\frac{1}{2}$. Yellow. August. England.
- hirsuta (hairy). 1. Flesh. May. Ireland.
- sphaeroldea (globe-like). 1. Flesh. May. Pyrenees.
- hirta (hairy). 1. June. Scotland.
- hybrid (hybrid). $\frac{1}{2}$. June. Piedmont. 1810.
- hypnoides (moss-like). $\frac{1}{2}$. May. Britain.
- angustifolia (narrow-leaved). $\frac{1}{2}$. May. Scotland.
- muscosa (mossy). $\frac{1}{2}$. May. Scotland.
- pulchella (pretty). $\frac{1}{2}$. May. Scotland.
- viscosa (clammy). $\frac{1}{2}$. May. Scotland.
- incurvifolia (incurved-leaved). $\frac{1}{2}$. May. Ireland.
- intacta (untouched). 1. June. Tyrol.
- minor (smaller). 1. May. Alps.
- parviflora (small-flowered). 1. May. Alps.
- intermedia (intermediate). 1. July. 1808.
- laetevirens (lively-green). $\frac{1}{2}$. May. Scotland.
- laevis (smooth). $\frac{1}{2}$. August. Caucasus.
- lanceolata (spear-bracted). $\frac{1}{2}$. May. Europe. 1800.
- obtusa (blunt). $\frac{1}{2}$. May. Europe. 1820.
- leptophylla (fine-leaved). $\frac{1}{2}$. May. Wales.
- angustifida (narrow-cleft). $\frac{1}{2}$. May. Wales.
- leucanthemifolia (stock-leaved). $\frac{1}{2}$. June. N. Amer. 1812.
- ligulata (strap-leaved). $\frac{1}{2}$. White, red. May. Nepaul. 1821.
- lingulata (tongue-leaved). $\frac{1}{2}$. June. Switzerland. 1821.
- media (intermediate). $\frac{1}{2}$. June. Carniola. 1800.
- moschata (musky). $\frac{1}{2}$. Lilac, yellow. May. Pyrenees.
- muscoides (moss-like). $\frac{1}{2}$. Pale yellow. May. England. 1819.
- mutata (changed). $\frac{1}{2}$. Lilac, yellow. June. Switzerland. 1779.
- nivialis (snowy). $\frac{1}{2}$. June. Britain.
- nudicaulis (naked-stemmed). $\frac{1}{2}$. May. N. Amer.
- oppositifolia (opposite-leaved). $\frac{1}{2}$. Purple. March. Britain.
- paniculata (panicle). $\frac{1}{2}$. May. Scotland.
- pedatifida (double-lobe-cleft). $\frac{1}{2}$. May. Scotland.
- Pedemontana (Piedmontese). May. Piedmont. 1824.
- Pennsylvanica (Pennsylvanian). $\frac{1}{2}$. Green, yellow. May. N. Amer. 1732.
- glabra (smooth). 2. Green, yellow. May. N. Amer. 1732.
- pentadactylis (five-fingered). $\frac{1}{2}$. May. Pyrenees. 1815.
- platyphylloides (broad-petaled). 1. June. Scotland.
- pulchella (pretty). $\frac{1}{2}$. May. Germany. 1818.
- pygmaea (pigmy). $\frac{1}{2}$. White, yellow. May. Scotland.
- pyrolaeifolia (pyrola-leaved). $\frac{1}{2}$. May. N. Amer. 1827.
- quinquefida (five-cleft). $\frac{1}{2}$. April. Scotland.
- retusa (bitten-off). $\frac{1}{2}$. Purple. May. Piedmont. 1826.
- rimularis (brook). $\frac{1}{2}$. June. Scotland.
- rotundifolia (round-leaved). 1. White, red. May. Austria. 1896.
- repanda (wavy-edged). 1. May. Caucasus. 1800.
- sarmentosa (trailing). 1. June. China. 1771.
- cuscutiformis (dodder-formed). $\frac{1}{2}$. June. China. 1815.
- Schraderi (Schrader's). 1. May. 1825.
- sedoides (sedum-like). $\frac{1}{2}$. Yellow. May. Europe. 1820.

- S. semipubescens* (slightly-downy). 1. Green, yellow. May. N. Amer. 1800.
 — *Sibirica* (Siberian). $\frac{3}{4}$. July. Siberia. 1802.
 — *spicata* (spiked). $\frac{3}{4}$. Spotted. May. N. Amer. 1827.
 — *stellaris* (starry). $\frac{3}{4}$. June. Britain.
 — *dissimilis* (dissimilar). $\frac{3}{4}$. June. Scotland.
 — *Schleicheri* (Schleicher's). Switzerland. 1819.
 — *Sternbergii* (Sternberg's). 1. May. Germany.
 — *tenuella* (delicate). $\frac{3}{4}$. July. Corinthia. 1819.
 — *tenera* (tender). $\frac{3}{4}$. Cream. May. Switzerland. 1819.
 — *thyrsanoides* (coarse-fringed-leaved). $\frac{3}{4}$. April. E. Ind. 1845.
 — *tricuspidata* (three-spined). May. N. Amer. 1824.
 — *tridentata* (three-toothed). $\frac{3}{4}$. May.
 — *umbrosa* (shady. London Pride). 1. Flesh. May. Britain.
 — *punctata* (dotted-flowered). 1. May. Ireland.
 — *serratifolia* (saw-leaved). May. Ireland.
 — *Virginicensis* (Virginian). $\frac{3}{4}$. May. N. Amer. 1790.
 — *viscosa* (clammy). $\frac{3}{4}$. May.

SCABIO'SA. Scabious. (From *scabies*, the itch; said to cure the disorder. Nat. ord., Teaselworts [Dipsacaceæ]. Linn., 4-*Tetrandria* 1-*Monogynia*.)

Hardy herbaceous perennials. Seeds and divisions in spring; common garden-soil.

- S. arvensis flore-albo* (field-white-flowered). 2. White. July. Britain.
 — *australis* (southern). $\frac{1}{4}$. Purple. June. Styria. 1820.
 — *Carpatica* (Carpathian). 1. White. June. Prussia. 1819.
 — *dichotoma* (forked). 1. Pink. July. Sicily. 1804.
 — *dipsacifolia* (teasel-leaved). 2. White. June. Germany. 1818.
 — *pubescens* (downy). 2. White. June. Hungary. 1820.
 — *Salcedi* (Salced's). 1. White. June. Spain. 1823.
 — *stricta* (upright). 2. Red. June. Hungary. 1820.

SCÆVA. Hawk Fly. Of this genus there are several species, of which the most common are *S. ribesii* and *S. pyrastris*. Wherever aphides are abundant, whether on the cabbage, hop, or elsewhere, there is a fleshy-green maggot. This is the larva of a hawk-fly, and should be left undisturbed, as it is a voracious destroyer of plant-lice.

SCÆVOLA. (From *scæva*, the left hand; form of the corolla. Nat. ord., Goodenads [Goodeniaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*.)

Divisions and cuttings of young shoots; the tender species in heat; the greenhouse in a cold pit, under a bell-glass; sandy loam and turfy peat; the usual greenhouse and stove treatment.

STOVE EVERGREENS.

- S. ivafolia* (iva-leaved). White. August. Trinidad. 1820.
 — *Konigii* (Konig's). 2. Pale red. E. Ind. 1820.
 — *Tacca'du* (Taccada). 2 $\frac{1}{2}$. White. August. E. Ind. 1810.

GREENHOUSE HERBACEOUS.

- S. alternata* (alternate-leaved). Purple. June. Swan River. 1844.
 — *anchusifolia* (anchusa-leaved). Blue. May. Swan River.
 — *attenuata* (thin-leaved). 2. Pale blue. June. Swan River. 1844.
 — *crassifolia* (thick-leaved). 3. White. September. N. Holland. 1805.
 — *cuneiformis* (wedge-shaped). $\frac{1}{4}$. Blue. N. Holland. 1824.
 — *fasciculata* (bundled). August. Swan River.
 — *hispida* (bristly). 2. Lilac. July. N. Holland. 1827.
 — *microcarpa* (small-fruited). $\frac{1}{4}$. Violet. July. N. S. Wales. 1790.
 — *multiflora* (many-flowered). Blue. July. Swan River. 1840.
 — *suaveolens* (sweet-scented). 2. Blue. August. N. S. Wales. 1793.

SCALE. See COCCUS.

SCALLION. See CIBOUL.

SCAMMONY. *Convolvulus scammonia*.

SCARES are but very inefficient protections for fruits, as birds soon sit on the very branches which bear the maulkin. To frighten them effectually, it is best to employ boys for the short time scaring is required. Over seed-beds a net is the best protection; but threads tightened across the beds are very effectual.

SCARLET RUNNER. *Phaseolus multiflorus*.

SCHÆERIA. (In honour of F. Scheer, Esq. Nat. ord., Gesnerworts [Gesneraceæ]. Linn., 14-*Didynamia* 2-*Angiospermia*.)

Stove herbaceous perennial, closely allied to Gloxinia. For culture, see ACHIMENES.

S. Mexicana (Mexican). $\frac{3}{4}$. Purple. August. Mexico. 1850.

There is a variety with light blue flowers.

SCHELHAMMERA. (Named after G. O. Schelhammer, a professor at Jena. Nat. ord., Melanths [Melanthaceæ]. Linn., 6-*Hexandria* 1-*Monogynia*. Allied to Uvularia.)

Greenhouse, purple-flowered, herbaceous perennials, from New Holland. Divisions; sandy loam and fibry peat; a cool greenhouse or a cold pit in winter.

- S. multiflora* (many-flowered). $\frac{1}{4}$. 1824.
 — *undulata* (wavy-leaved). $\frac{3}{4}$. June. 1824.

SCHELLO'LEPIS. (From *skellos*, distorted, and *lepis*, a scale. Nat. ord., Ferns [Polypodiaceæ]. Linn., 24-*Cryptogamia* 1-*Filices*.)

Stove, yellow-spored Indian Ferns. (See FERNS.) There are two species, *S. amœna* (lovely), and *verrucosa* (warted).

SCHINUS. (The Greek name for *Pistacia lentiscus*. Nat. ord., Terebinths [Terebinthaceæ]. Linn., 23-*Diacia* 9-*Decandria*.)

Greenhouse, green-flowered evergreens. Cut

tings of ripe shoots in sand, under a bell-glass, and in a mild heat, in spring; loam and peat. Winter temp., 45°; summer, 60° to 75°.

S. molle (molle). 20. August. Peru. 1597.
— *terebinthifolia* (terebinthus-leaved). 20. Brazil. 1829.

— *virga'ta* (twiggy). 8. June. Lima. 1822.

SCHIVERE'OKIA. (Named after A. Schiureck, a Russian botanist. Nat. ord., *Crucifers* [Brassicaceæ]. Linn., 15-*Tetradynamia*. Alliance near *Alyssum*.)

Hardy herbaceous. Divisions; common garden-soil.

S. Podolica (Podolian). 4. Yellow. June. Podolia. 1821.

SCHIZE'A. (From *schizo*, to cleave, or cut; the appearance of the fan-like fronds. Nat. ord., *Ferns* [Polypodiaceæ]. Linn., 24-*Cryptogamia* 1-*Filices*.)

Brown-spored Ferns. See FERNs.

GREENHOUSE FERNS.

S. bifida (twice-cut). 4. June. N. Holland. 1822.

— *pust'la* (small). 4. June. N. Amer.

— *rupe'stris* (rock). 4. June. N. Holland. 1822.

STOVE FERNS.

S. elegans (elegant). 4. June. Trinidad. 1819.

— *penicilla'ta* (pencilled). 4. June. S. Amer. 1816.

— *propinqua* (related). April. Malacca.

SCHIZA'NDRA. (From *schizo*, to cut, and *aner*, the male organ; split stamens. Nat. ord., *Kadsurads* [Schizandraceæ]. Linn., 21-*Monœcia* 5-*Pentandria*.)

Cuttings of ripe shoots in sand, under a bell-glass, and kept only a little higher than the temperature of a cold pit or greenhouse; sandy, fibry loam, and a little leaf-mould. Winter temp., 40° to 45°. This creeper lived several years against the conservative wall at Chiswick.

S. coccinea (scarlet-flowered). Scarlet. June. N. Amer. 1806.

SCHIZA'NTHUS. (From *schizo*, to cut, and *anthos*, a flower; the petals cut into fringes. Nat. ord., *Figworts* [Scrophulariaceæ]. Linn., 2-*Diandria* 1-*Monogynia*.)

Seeds in autumn, to be kept in a greenhouse, for early blooming; seeds in a slight hotbed, in March, for successive blooming in pots, and early blooming out of doors; seed in the open air in the end of April. Beautiful annuals, fitted either for pot or border culture; rich, light, fibry loam; when kept over the winter, the soil should be poor, and the plants near the glass.

S. caudatus (whitish). 2. White. Coquimbo. 1843.

— *Grahami* (Graham's). 2. Variegated. August. Chili. 1831.

— *Hookeri* (Hooker's). 2. Rose, lilac. August. Chili. 1828.

— *pinnatifidus* (leaflet-cut). 2. Various. May. Coquimbo. 1841.

— *pinnatus* (leafleted). 2. White, purple. August. Chili. 1822.

— *humilis* (dwarf). 1. Crimson. July. Valparaiso. 1831.

— *porrigens* (spreading-stalked). 2. Crimson. August. Chili. 1822.

— *retusus* (bitten-off-petaled). 2. Variegated. August. Chili. 1831.

SCHIZOE'NA. (From *schizo*, to cut, and *kainos*, unusual. Nat. ord., *Ferns* [Polypodiaceæ]. Linn., 24-*Cryptogamia* 1-*Filices*.)

Stove Fern. See FERNs.

S. Brunonis (Brown's). Brown, yellow. April. Malacca.

SCHIZOLO'MA. (From *schizo*, to cut, and *loma*, an edge; edges of fronds. Nat. ord., *Ferns* [Polypodiaceæ]. Linn., 24-*Cryptogamia* 1-*Filices*.)

Brownish-yellow-spored stove Ferns. See FERNs.

S. ensifolia (sword-leaved). May. Malacca.

— *heterophylla* (various-leaved). May. Isle of Luzon.

SCHIZOME'RIA. (From *schizo*, to cut, and *meros*, a part; cut petals. Nat. ord., *Cunoniads* [Cunoniaceæ]. Linn., 10-*Decandria* 2-*Digynia*. Allied to *Weinmannia*.)

Greenhouse evergreen shrub. Cuttings of half-ripened shoots in sand, under a bell-glass, in spring; loam and peat, with silver sand and charcoal. Winter temp., 40° to 48°.

S. ovata (egg-leaved). 8. White. N. Holland. 1825.

SCHIZOPE'TALON. (From *schizo*, to cut, and *petalon*, a petal. Nat. ord., *Crucifers* [Brassicaceæ]. Linn., 15-*Tetradynamia*.)

Seeds in a slight hotbed in March, pricked out into pots, and grown in an airy greenhouse, or transplanted to the front of borders in May; sandy loam and leaf-mould; if in a pot, add a little peat.

S. Walkeri (Walker's). 2. White. June. Chili. 1822.

SCHMIDEL'IA. (Named after O. C. Schmidel, a German botanist. Nat. ord., *Soapworts* [Sapindaceæ]. Linn., 8-*Oc-tandria* 1-*Monogynia*. Alliance near *Sapindus*.)

Stove, white-flowered evergreens. Cuttings of ripe shoots in sand, under a bell-glass, in the beginning of summer, and placed in a mild bottom-heat; sandy loam and fibry peat. Wintertemp., 50° to 60°; summer, 60° to 85°.

S. cominia (cominia). 20. Jamaica. 1778.

— *integrifolia* (whole-leaved). Bourbon. 1804.

— *occidentalis* (western). S. W. Ind. 1828.

— *racemosa* (racemed). 15. May. E. Ind. 1820.

— *serrata* (saw-leaved). 12. E. Ind. 1804.

SCHÆ'NIA. (In honour of Dr. Schæn, a botanical artist. Nat. ord., *Composites* [Asteraceæ]. Linn., 19-*Syngenesia* 2-*Superflua*. Allied to *Pteropogon* and *Helichrysum*.)

A tender annual. Sow end of March in moderate heat; transplant seedlings into small pots in same heat; plant four or five in an eight-inch pot; gradually harden; and when in flower place in greenhouse.

S. oppositifolia (opposite-leaved). 1. Pink. May. Swan River. 1846.

SCHOMBURGKIA. (Named after Sir R. Schomburgk. Nat. ord., *Orchids* [*Orchidaceæ*]. Linn., 20-*Gyandria* 1-*Monandria*. Allied to *Cattleya*.)

- Stove orchids, grown on blocks. See *ORCHIDS*.
S. crispa (curled-flowered). 3. Yellow, brown, pink. January. La Guayra. 1844.
 — *marginata* (bordered. *Spread Eagle*). 4. Orange. August. Surinam. 1834.
 — *rosea* (rosy). Deep red and pale rose. Sierra Nevada.
 — *tibicinis* (cow-horn). 8. Pink, white. April. Honduras. 1834.
 — *grandiflora* (large-flowered). 5. Brown, rose. May. Honduras. 1844.
 — *undulata* (wavy-petaled). Purple. January. La Guayra. 1843.

SCHOTIA. (Named after R. V. Schot, who travelled with Jacquin. Nat. ord., *Leguminous Plants* [*Fabaceæ*]. Linn., 10-*Decandria* 1-*Monogynia*. Allied to *Amherstia*.)

Greenhouse evergreen shrubs, from the Cape of Good Hope. Cuttings of half-ripened, young, stubby shoots in sand, under a bell-glass; sandy peat and fibry loam; flowers chiefly at the end of stiff young shoots.

- S. alata* (winged). 5. Crimson. July. 1816.
 — *latifolia* (broad-leaved). Purple, white. June. 1810.
 — *simplicifolia* (simple-leaved). Red. June. 1816.
 — *speciosa* (showy). 5. Scarlet. August. 1759.
 — *stipulata* (large-stipuled). 5. Crimson. July. 1794.
 — *tamarindifolia* (tamarind-leaved). 6. Crimson. August. 1795.

SCHOUWIA. (Named after J. F. Schouw, a Danish botanist. Nat. ord., *Crucifers* [*Brassicaceæ*]. Linn., 15-*Tetradynamia*.)

Hardy annual. Seeds in light, sandy soil, in April.

- S. Arabica* (Arabian). 3. Purple. June. Arabia. 1837.

SCHRAENKIA. (Named after F. P. Schrank, a German botanist. Nat. ord., *Leguminous Plants* [*Fabaceæ*]. Linn., 23-*Polygamia* 1-*Monœcia*. Allied to *Mimosa*.)

The leaves yield to the touch like those of the sensitive plant, *Mimosa pudica*. Herbaceous plants. Division of the roots in spring, and cuttings of the young shoots in spring, in sandy soil, under a bell-glass, and a little bottom-heat; sandy loam and fibry peat. Plant-stove and cool greenhouse treatment.

- S. aculeata* (prickly). 2. Red. July. Vera Cruz. 1738. Stove.
 — *leptocarpa* (slender-podded). Rose. July. St. Domingo. 1837. Stove.
 — *uncinata* (hooked). 2. Red. July. N. Amer. 1789. Greenhouse.

SCHUBERTIA. (Named after M. Schubert, a Polish botanist. Nat. ord., *Asclepiads* [*Asclepiadaceæ*]. Linn., 5-*Pentandria* 2-*Digynia*.)

Stove evergreen twiners, from Brazil. Cuttings of stubby side-shoots in sand, under a bell-glass, in bottom-heat; sandy loam, fibry peat, and a little charcoal and pounded bricks, with pots well drained. Winter temp., 50° to 55°; summer, 60° to 85°.

- S. grandiflora* (large-flowered). White. July. 1837.
 — *graveolens* (strong-scented). Pale yellow. July. 1837.

SCHWEIGGERIA. (Named after Professor Schweigger, a German botanist. Nat. ord., *Violetworts* [*Violaceæ*]. Linn., 5-*Pentandria* 1-*Monogynia*.)

Stove evergreen. Cuttings of firm side-shoots, two or three inches in length, in sand, under a bell-glass, in May, and in a sweet hotbed. Winter temp., 50° to 55°; summer, 60° to 85°.

- S. pauciflora* (few-flowered). White. May. Brazil. 1838.

SCIARA. *S. pyri*, Small Pear Midge. *S. Schmidbergeri*, Large Pear Midge. When a fallen pear is cut open, it is often found core-eaten, and with a brown powder marking the progress of the assailant. This is caused by the larva of these insects. The midges appear early in July. The Small Pear Midge has club-shaped halteres, the club dark brown, and the stem whitish. When alive, the abdomen is of a lead colour, with black wings. The head and thorax are black, as are also the antennæ; the palpi are of a pale yellow, the feet whitish, and the tarsi black.

The *Large Pear Midge* appears about the same time as the preceding. The female is little more than a line long, and half a line thick, also much larger than the smaller pear midge; the male is more slender, and somewhat shorter. The antennæ are blackish, and not so long as the body. The head is black and shining, as is also the thorax; the proboscis ash-grey, the abdomen of the male a deep black, that of the female browner, with black wings; the anal point, however, is quite black, the feet ash-grey, and the tarsi and wings black. They both survive the winter, and deposit their eggs in the blossom, when it opens in early spring. The larva eats its way into the core of the young fruit, and again eats its way out at one side when the time arrives for it to bury itself in the ground, and pass into the chrysalis form. — *Kollar*.

SCIALLA. Squill. (From *skyllō*, to injure; the bulbs said to be poisonous. Nat. ord., *Lilyworts* [*Liliaceæ*]. Linn., 6-*Hexandria* 1-*Monogynia*.)
 Offsets; light, sandy soil.

TENDER BULBS.

- S. brevifolia* (short-leaved). $\frac{1}{2}$. Pink. January. Cape of Good Hope. 1811.
 — *hyacinthoides* (hyacinth-like). $\frac{1}{2}$. Blue. August. Madeira. 1585.
 — *Mauritanica* (Mauritian). $\frac{1}{2}$. Blue. April. Mauritius. 1819.
 — *plumbæa* (lead-coloured). 1. Lead. May. Cape of Good Hope. 1812.

HARDY BULBS.

- S. amœna* (pleasing). $\frac{1}{2}$. Blue. March. Levant. 1596.
 — *amœnula* (pretty). $\frac{1}{2}$. Blue. June. Russia. 1822.
 — *autumnalis* (autumnal). $\frac{1}{2}$. Pink. August. England.
 — — *a'lba* (white). $\frac{1}{2}$. White. August.
 — — *major* (larger). $\frac{1}{2}$. Pink. August. Britain.
 — *Bertolonii* (Bertoloni's). Lilac. May.
 — *bifolia* (two-leaved). $\frac{1}{2}$. Blue. March. England.
 — — *a'lba* (white). $\frac{1}{2}$. White. March. South Europe.
 — — *rubra* (red). $\frac{1}{2}$. Red. March. South Europe.
 — *brunnealis* (winter). Blue. May. N. Amer. 1841.
 — *campanulata* (bell-flowered). 1. Dark blue. May. Spain. 1633.
 — — *a'lba* (white). 1. White. May. South Europe. 1683.
 — — *carnea* (flesh-coloured). 1. Pink. May. South Europe. 1693.
 — *cernua* (drooping). $\frac{1}{2}$. Pink. March. Spain. 1815.
 — *corymbosa* (corymbed). $\frac{1}{2}$. Pink. October. Cape of Good Hope. 1793.
 — *Cupania'sna* (Cupani's). 1. Purple. June. Sicily. 1834.
 — *esculentæ* (eatable). 1. White. June. N. Amer. 1811.
 — *Indica* (Indian). 1. E. Ind. 1816.
 — *Italica* (Italian). $\frac{1}{2}$. Blue. May. Switzerland. 1605.
 — *lilio-hyacinthus* (lily-hyacinth). 1. Blue. June. Europe. 1597.
 — *Lusitanica* (Portuguese). $\frac{1}{2}$. Blue. May. Portugal. 1777.
 — *no'n-scripta* (undescribed). $\frac{1}{2}$. Blue. April. Britain.
 — — *a'lba* (white). White. April. Britain.
 — — *carnea* (flesh-coloured). $\frac{1}{2}$. Flesh. April. Britain.
 — *obtusifolia* (blunt-leaved). $\frac{1}{2}$. Blue. March. South Europe. 1829.
 — *odorata* (sweet-scented). Blue. May. Portugal. 1818.
 — *Peruviana* (Peruvian). 1. Dark blue. May. Spain. 1697.
 — — *a'lba* (white). 1. White. May. South Europe. 1607.
 — — *discolor* (two-coloured-flowered). 1. Buff. May. Portugal. 1843.
 — *præbracteata* (long-bracted). 1. Blue. June. South Europe.
 — *præcox* (early). $\frac{1}{2}$. Dark blue. March. 1790.
 — *pratensis* (meadow). Blue. May. Hungary. 1827.
 — *pubens* (downy). $\frac{1}{2}$. Blue. May. Lunimar.
 — *pumila* (dwarf). Blue. May. Spain. 1821.
 — *rosea* (rosy). $\frac{1}{2}$. Rose. Numidia. 1827.
 — *Sibirica* (Siberian). $\frac{1}{2}$. Blue. February. Siberia. 1796.
 — *umbellata* (umbelled). $\frac{1}{2}$. Blue. April. Pyrenees. 1822.
 — *unifolia* (one-leaved). $\frac{1}{2}$. White. May. Portugal.
 — *verna* (spring). $\frac{1}{2}$. Blue. April. Britain.
 — — *a'lba* (white-flowered). $\frac{1}{2}$. White. May.

S. verna rosea (rosy). $\frac{1}{2}$. Rose. May.
 — *villo'sa* (shaggy-leaved). $\frac{1}{2}$. Lilac. Tripoli. 1831.

SCIODA'CALYX. (From *scias*, a parasol, and *calyx*; alluding to the shape of this part of the flower. Nat. ord., *Gesner-worts* [Gesneraceæ]. Linn., 14-*Didynamia* 2-*Angiospermia*.)

This is a very gay stove plant, blooming from July to January. Cultivated like Achimenes.

S. Warszewiczii (Warszewicz's). 3. Scarlet, yellow. New Grenada Mountains. 1855.

SCIODAPHY'LLUM. (From *skiæides*, shady, and *phyllon*, a leaf; the large leaves afford much shade. Nat. ord., *Ivyworts* [Araliaceæ]. Linn., 5-*Pentandria* 5-*Pentagynia*. Allied to the Ivy.)

Stove evergreens. Cuttings of half-ripened shoots in sand, under a bell-glass, in heat, in spring; sandy loam and fibry peat. Winter temp., 50° to 55°; summer, 60° to 80°. The Peruvian species will thrive well in a greenhouse with 10° less.

S. acuminatum (pointed-leaved). 10. Yellow. Peru. Climber.

— *anomalum* (anomalous). 20. White, green. Trinidad. 1817.

— *Brownii* (Brown's). 20. White. Jamaica. 1793.

— *conicum* (conical). 10. Pale red. Peru. Climber.

— *digitatum* (finger-leaved). 10. Green. E. Ind. 1820.

— *pedicellatum* (long-leaf-stalked). 10. Purple. Peru. Climber.

— *pentandrum* (five-stamened). 9. Pale red. Peru. 1820.

SCION. See GRAFF.

SCISSORS of various sizes are required by the gardener. A pair with very sharp and pointed blades is required for cutting away the anthers of flowers in hybridizing, and for thinning grapes. Stouter pairs are used for removing flower-stalks when the petals have fallen from roses, &c. Sliding pruning scissors (see Fig.) are employed for cutting the shoots of shrubs. They are powerful instruments for the purpose; but a more simple pair, without a spring, is made by Mr. Turner, Neepsend, Sheffield.



Shears are only large scissors. *Hedge Shears* for clipping hedges are the most common. *Sliding Pruning Shears*, with a moveable centre, so as to make a drawing cut when used as when the pruning knife is employed. See **AVERRUNCATOR**.



The drawing shows the smaller size, used with one hand. The large size, which has wooden handles, will, when employed with both hands, cut through a bough

full three inches in circumference with the greatest ease.

Verge Shears are merely the hedge shears set nearly at a right angle on long handles, for the convenience of the gardener in clipping the sides of box-edging and the verge of grass-plots. *Turf Shears* are set also at an angle, but in a different direction, for cutting the tops of edgings, and grass growing in corners unapproachable by the scythe.

SCLERÖON. (From *scleros*, hard, and *oon*, an egg; hard seeds. Nat. ord., *Verbenas* [Verbenaceæ]. Linn., 14-*Didynamia* 2-*Angiospermia*. Allied to *Cornutia*.)

Greenhouse evergreen. Cuttings of young shoots in sand, under a bell-glass, in spring; peat, loam, and leaf-mould, and half a part of silver sand. Winter temp., 38° to 48°; summer, 60° to 75°.

S. olefinum (olive-like). 2. Green, white. May. Mexico. 1840.

SCLEROTHA'MNUS. (From *scleros*, hard, or rigid, and *thamnus*, a shrub. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 10-*Decandria* 1-*Monogynia*. Allied to *Pultenea*.)

Greenhouse evergreen. Cuttings of stiff side-shoots in April or May, in sand, under a bell-glass; two parts peat, and one of sandy, fibry loam, and one of equal parts broken bats, charcoal, and silver sand. Winter temp., 40° to 48°.

S. microphyllus (small-leaved). 2. Yellow. May. N. Holland. 1803.

SCOLOPE'NDRIUM. Hart's Tongue. (From *scolopendra*, a centipede; the appearance of the seed, or spore-cases. Nat. ord., *Ferns* [Polypodiaceæ]. Linn., 24-*Cryptogamia* 1-*Filices*.)

Hardy, brown-spored Ferns. See **FERNs**.

S. hemionitis (hemionitis). 1. August. Spain. 1779.

— *Krebsii* (Krebs). Natal. 1854.

— *officinarium* (shop). 1½. July. Britain.

— *angustifolium* (narrow-leaved). ¾. July. Britain.

— *crispum* (curled-leaved). 1½. July. Britain.

— *multifidum* (many-cleft). 1½. July. Britain.

— *ramosum* (branchy). 1½. July. Britain.

— *undulatum* (wave-leaved). 1½. July. Britain.

— *pinna'tum* (leafleted). 1. May. India. Greenhouse.

SCOLYMUS. Golden Thistle. (From *skolos*, a thorn; plants spiny. Nat. ord., *Composites* [Asteraceæ]. Linn., 19-*Syngenesia* 1-*Æqualis*. Allied to *Chicory*.)

Hardy, yellow-flowered plants. Seeds and divisions in spring; common garden-soil.

S. grandiflorus (large-flowered). 3. May. Barbary. 1820. Herbaceous.

— *Hispanicus* (Spanish). 3. August. South Europe. 1658. Herbaceous.

— *maculatus* (spotted). 3. July. South Europe. 1633. Annual.

SCOLYTUS. A genus of small beetles,

very nearly allied to *Bostrichus*. *S. destructor* attacks the Elm; *S. ligniperda* the bark of some of the Conifers; and *S. crenatus* perforates, in a similar manner, the wood of the Plum. They do not, however, confine their ravages to the trees we have named. They are not more than an eighth of an inch long, black, with chestnut-coloured legs, and sprinkled over with bristles.

SCOPO'LIA. (Named after *G. A. Scopoli*, a foreign botanist. Nat. ord., *Nightshades* [Solanaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Physalis*.)

Hardy herbaceous. Division of the roots in spring, or sowing the seeds in a slight hotbed; sandy loam, and a dry situation.

S. Carniolica (Carniolian). 1. Dark purple. April. Carniola. 1780.

SCORCHING, or BURNING, describes the drying up of the roots or of the leaves from exposure to too much heat. The preventive, in the first case, is reducing the temperature of the hotbed, or lifting the pots if the plants are so grown; in the second case, as it always arises from the sun's rays in the confined air of a house, Hartley's rough glass, and early ventilating, are the preventives.

SCORPION. *Genista scorpius*.

SCORPION GRASS. *Myosotis*.

SCORPION SENNA. *Coronilla emerus*.

SCORZONE'RA. Viper's Grass. (From *scurraon*, a viper; supposed remedy for the bite of a viper. Nat. ord., *Composites* [Asteraceæ]. Linn., 19-*Syngenesia* 1-*Æqualis*.)

Hardy herbaceous; yellow-flowered, except where otherwise stated. Seeds in April or May; common garden-soil.

S. augustifolia (narrow-leaved). ¾. July. South Europe. 1759.

— *caricifolia* (carex-leaved). 1½. July. Siberia. 1805.

— *ensifolia* (sword-leaved). ¾. May. Caucasus. 1825.

— *glastifolia* (wood-leaved). 2. July. Germany. 1816.

— *graminifolia* (grass-leaved). 2. July. Portugal. 1759.

— *Hispanica* (Spanish). 3. July. Spain. 1576.

— *humilis* (lowly). 1. August. Europe. 1597.

— *lanata* (woolly). 1. July. Iberia. 1824.

— *latifolia* (broad-leaved). June. Persia. 1836.

— *purpurea* (purple). 2. Purple. May. Austria. 1759.

— *rosea* (rosy). 1½. Pink. July. Hungary. 1807.

— *tuberosa* (tuberous). ¾. June. Volga. 1825.

SCORZONE'RA in the kitchen-garden is the *S. Hispanica*, grown for its parsnip-like roots. Sow annually, in any open light spot of ground, the latter end of March or beginning of April. Trench the ground, and with the bottom spit turn in a little dung; sow in half-inch

deep drills, twelve inches asunder. Thin the plants to ten inches distance; they will grow freely, and their roots continue increasing in size till September. The roots may either remain in the ground, to be drawn as wanted, or taken wholly up in autumn when their leaves decay, and preserved in sand all winter.

To save Seed.—Let some of the plants remain where sown, when they will shoot up in the spring, and produce plenty of seed in autumn.

SCOTCH ASPHODEL. *Tofieldia alpina*.

SCOTCH-KALE. *Brassica oleracea sabullica*.

SCOTCH LABURNUM. *Cytisus alpinus*.

SCOTTIA. (Named after Dr. Scott, once professor of botany in Dublin. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 16-Monadelphia 6-Decandria.)

Greenhouse evergreen shrubs, from New Holland. Cuttings of shoots, when getting a little firm at the base; sandy, fibry loam one part, and two parts of sandy, fibry peat, with a little charcoal. Winter temp., 40° to 48°.

S. angustifolia (narrow-leaved). 6. Green, yellow. April. 1825.

— *dentalia* (tooth-leaved). 3. Red, green. July. 1803.

— *levis* (smooth-branched). 3. Yellow, scarlet. June. 1833.

— *trapeziformis* (trapezium-leaved). January. 1825.

SCREEN. All cooling is occasioned either by the heat being conducted from a body by a colder, which is in contact with it, or by radiating from the body cooled, though circumstances accelerate or retard the radiation; and whatever checks the radiation of heat from a body is a screen, and keeps it warmer. For screening or protecting the blossom of wall-fruit, Mr. Errington states:—We do not know that any material is more proper for covering than thin canvass, such as is manufactured by Mr. Nathaniel Hulme, of Paradise-green, Knutsford, which he sells at about fivepence per square yard. He generally makes it in widths of three yards, which is enough for most walls, so that every lineal yard costs fifteenpence; but then this canvass will last well for seven years if properly preserved, and a due care be exercised. Thus it will be seen, that the annual expense of protecting a lineal yard of walling is not more than twopence-halfpenny, exclusive of a few ordinary poles. We place a pole every six feet, running under the coping at top, and straddling away nearly two feet at bottom. At two feet above the ground

level an auger hole is bored in the pole, and an oaken peg driven in, the end left projecting nine inches forward; and when the canvass is lowered in the day, it hangs in folds on this line of pegs: this keeps it from contact with the damp soil. Every pole has a ring dangling from a staple close to the top; and on the outer face a rope of sash-cording is attached to the edge of the canvass opposite each ring; this being passed through the ring from the under side, enables the operator to pull it up or let it down with ease. Thus, when the canvass is lowered, the wall is uncovered, and *vice versa*. Now, these rings and cords will add to the expense; and, since both are very durable, we may, perhaps, add another halfpenny per lineal yard to the amount, accounting the ropes to last nearly as long as the canvass. A still more complete plan is to hang the canvass like curtains, or after the manner of the covering to what are termed conservative walls.

For wall-trees, now that glass is become so much cheaper, the best of all screens may be employed, viz., glazed frames, of a length extending from the coping of the wall to the surface of the soil, about two feet from the stems of the trees. See GLASS CASE.

SCREW PINE. *Pandanus*.

SCREW-TREE. *Helicteres*.

SCRUBBY OAK. *Lophira Africana*.

SCURVY GRASS (*Cochlearia officinalis*) flourishes most in a sandy, moist soil. Sow as soon as the seeds are ripe in June or July, in drills, eight inches apart, and half an inch deep. Thin to eight inches asunder, and those removed may be transplanted to a bed at similar distances, giving water at the time, and frequently afterwards, until fully established. The leaves are fit to gather during the following spring.

To obtain Seed.—A few plants must be left ungathered from in the spring. They will run up to flower about May, and perfect their seed in the course of the two following months.

SCUTELLA'RIA. Skull-cap. (From *scutella*, a little saucer; form of calyx. Nat. ord., *Lipworts* [Lamiaceæ]. Linn., 14-Didymia 2-Angiospermia.)

Seeds and divisions in spring, and the evergreen kinds easily by cuttings under a hand-light; some of the tender species are very handsome, such as *cordifolia*; but the red spider must be looked after.

TENDER SPECIES.

- S. cordifolia* (heart-leaved). 1. Scarlet, orange. September. Mexico. 1844. Stove evergreen.
 — *humilis* (dwarf). $\frac{1}{2}$. Blue. June. N. S. Wales. 1823. Greenhouse.
 — *incarnata* (flesh-coloured). $1\frac{1}{2}$. Rose. August. Quito. 1844. Greenhouse evergreen.
 — *Ventenatii* (Ventenat's). 2. Scarlet. August. St. Martha. 1844. Greenhouse.
 — *villo'sa* (shaggy). $\frac{3}{4}$. Scarlet. February. Peru. 1842.

HARDY HERBACEOUS.

- S. alpina* (alpine). $\frac{3}{4}$. Purple. August. Hungary. 1752.
 — *lutea* (yellow). Yellow. August. Tartary. 1739.
 — *sanguinea* (blood-red). $\frac{1}{2}$. Red. July. 1835.
 — *variegata* (variegated-flowered). $\frac{3}{4}$. Pale yellow. August. Switzerland.
 — *altissima* (tallest). 1. Dark purple. July. Crimea. 1824.
 — *Columnæ* (Column's). $1\frac{1}{2}$. Blue. July. South Europe. 1806.
 — *commutata* (changed). Purple. August. Hungary. 1683.
 — *galericulata* (small-capped). 1. Blue. July. Britain.
 — *grandiflora* (large-flowered). $1\frac{1}{2}$. Red. July. Siberia. 1804.
 — *hastifolia* (spear-leaved). $\frac{1}{2}$. Purple. June. Germany. 1798.
 — *hirta* (hairy). Dark purple. June. Candia. 1835.
 — *integrifolia* (entire-leaved). 1. Blue. July. N. Amer. 1731.
 — *Japonica* (Japan). $\frac{3}{4}$. Purple, white. August. Japan. 1838.
 — *lateriflora* (side-flowering). 1. Blue. July. N. Amer. 1752.
 — *macrantha* (large-flowered). $\frac{3}{4}$. Blue. August. Dahuria. 1827.
 — *minor* (less). $\frac{1}{2}$. Pink. July. Britain.
 — *nervosa* (large-nerved). 1. Blue. July. Virginia. 1826.
 — *orientalis* (eastern). 1. Yellow. August. Levant. 1729.
 — *paucula* (very-small). $\frac{1}{2}$. Blue. July. N. Amer. 1822.
 — *peregrina* (spreading). 2. Violet. August. Tauria. 1823.
 — *pilo'sa* (shaggy). 1. Blue. July. N. Amer. 1825.
 — *purpurea* (purplish). 2. Blue. June. W. Ind. 1820.
 — *serrata* (saw-leaved). $\frac{1}{2}$. Blue. August. N. Amer. 1800.
 — *Tournefortii* (Tournefort's). $1\frac{1}{2}$. Purple. July. Persia. 1837.
 — *verna* (spring). $\frac{1}{2}$. Blue. June. South Europe. 1821.

SCUTICARIA. (From *scutica*, a whip; leaves as round as a whipcord. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-*Gynandria* 1-*Monandria*. Once called a *Maxillaria*.)

Stove orchid, grown on blocks. See ORCHIDS.

S. Steelii (Steel's). Yellow-spotted. July. Guaiana. 1834.

SCYPHANTHUS. (From *scyphos*, a cap, and *anthos*, a flower. Nat. ord., *Loasads* [Loasaceæ]. Linn., 18-*Polyadelphia* 2-*Polyandria*.)

This name is so much in use that we retain it, though a synonyme of *Grammatacarpus*. Hardy, yellow-flowered, twining annuals, from Chili. Seeds in the open air in May, or in a slight hot-bed in March, to be afterwards transplanted.

S. elegans (elegant). August. 1824.

— *grandiflorus* (large-flowered). 2. August. 1824.

SCYTHE. This mowing implement being confined, in the garden, to cutting the fine, short grass of lawns, requires to be much sharper than that used in cutting the coarser grasses, which stand up more firmly to the scythe. It is also necessary that the mowers should not score the grass, that is, should not leave the mark of each stroke of the scythe, which has a very unsightly appearance; to prevent which, have the scythe laid out rather wider, an inch or two beyond heel and toe, especially for very short grass; and in mowing keep the point rather out, and do not draw that part too fast toward, gathering the grass neatly to the left in a range; and having mowed to the end of the swath, mow it lightly back again, to trim off all scores and other irregularities unavoidably left the first time. A great inconvenience attending the old scythe is the difficulty of fastening and adjusting the blade to the handle. This is entirely obviated by *Boyd's Self-adjusting Scythe*. It is always a problem to determine the angle the blade should make with the handle, as it varies with every mower. A good guide is for a perpendicular line to be chalked against a wall, and for the mower to stand close and directly fronting to this line; then, without moving his feet, and with arm at full stretch above his head, to chalk a line to the left, from the perpendicular line, as far as he can reach. The line he thus chalks should correspond with the angle of the scythe's blade, supposing the perpendicular line to represent the handle.

SEA-BUCKTHORN. *Hippo'phaë*.

SEAFO'RTIIA. (Named after Lord Seaforth, a botanical patron. Nat. ord., *Palms* [Palmaeæ]. Linn., 23-*Polygamia* 1-*Monœcia*.)

Stove Palm. Seeds; rich, sandy loam. Winter temp., 45° to 50°; summer, 60° to 75°.

S. elegans (elegant). N. Holland. 1822.

SEA-HEATH. *Franke'nia*.

SEA-HOLLY. *Eryngium*.

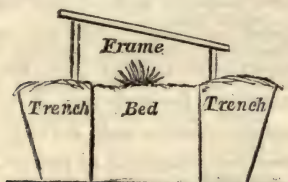
SEA-KALE. *Cra'mbe mari'tima*. See CRA'MBE.

In addition to what is there stated of its culture, we have only to give drawings

of the pots usually employed for blanching it; but see RHUBARB for a frame, which also answers, when fermenting materials are heaped over, to force it.



The following is also a good mode of forcing:—On each side of a three-foot bed dig a trench two feet deep, the side of it next the bed being perpendicular, but the outer side sloping, so as to make it eighteen inches wide at the bottom, but two and a half at the top. These



trenches fill with fermenting dung, which, of course, may be renewed if found necessary, and frames put over the plants, the light to be completely excluded by boards, matting, &c. The accompanying sketch represents a section of the construction.

SEA LAVENDER. *Statice*.

SEA RAGWORT. *Cinera'ria mari'tima*.

SEA-SIDE GRAPE. *Cocco'loba*.

SEA-SIDE BALSAM. *Cro'ton eleute'ria*.

SEA-SIDE LAUREL. *Xylophy'lla latifo'lia*.

SEA-WEED. See GREEN MANURE.

SEBÆ'A. (Named after A. Seba, a Dutch botanist. Nat. ord., *Gentianworts* [Gentianaceæ]. Linn., 4-Tetrandria 1-Monogynia.)

Greenhouse annuals, all but *ova'ta* from the Cape of Good Hope. Seeds in a sweet hotbed in March, pricked out or potted, and either bloomed in the open garden, or in the greenhouse after May.

S. albens (whitish). $\frac{1}{2}$. White. August. 1820.

— *au'rea* (golden). $\frac{1}{2}$. Yellow. July. 1824.

— *corda'ta* (heart-leaved). $\frac{1}{2}$. Yellow. July. 1815.

— *ova'ta* (egg-leaved). $\frac{1}{2}$. Red. August. N.

S. Wales. 1820.

SECAMO'NE. (Altered from *squamona*, the Arabic name. Nat. ord., *Asclepiads* [Asclepiadaceæ]. Linn., 5-Pentandria 2-Digynia.)

Stove, white-flowered, evergreen twiners. Cuttings of firm side-shoots when about three inches

in length; fibry loam, two parts; fibry peat and very rotten dung, or leaf-mould, dried, one part; silver sand and charcoal, to keep it open. Winter temp., 50° to 60°; summer, 60° to 85°.

S. Ægypti'aca (Egyptian). 6. July. Egypt. 1752.

— *elliptica* (oval-leaved). 6. N. Holland. 1824.

— *eme'tica* (emetic). 6. India. 1816.

SE'CHIUM. Choko. (From *sekiso*, to fatten; hogs are fed on the fruit in Jamaica. Nat. ord., *Cucurbits* [Cucurbitaceæ]. Linn., 21-Monæcia 10-Monadelphia.)

A cucumber-like, yellow-flowered annual; seeds in a hotbed, and either cultivated in houses or pits; or, after June, in the open air; light, rich soil.

S. Se'cle (eatable). 6. June. W. Ind. 1816.

— *palm'a'tum* (hand-leaved). June. Mexico. 1827.

SECURIDA'CA. (From *securis*, a hatchet; form of the wing-like process at the end of the pod. Nat. ord., *Milkworts* [Polygalaceæ]. Linn., 17-Diadelphica 3-Octandria.)

Stove evergreen twiners, from the West Indies. Cuttings of half-ripened shoots in sand, under a bell-glass, and in bottom-heat. Winter temp., 50° to 60°; summer, 60° to 80°. Sandy loam and sandy, fibry peat.

S. ere'cta (upright). Purple. July. 1824.

— *panicu'la'ta* (panicked). Yellow. July. 1820.

— *virga'ta* (twiggy). 10. White. 1739.

— *volu'bilis* (twining). 10. White. 1739.

SE'DUM. Stonecrop. (From *sedere*, to sit; they grow as if sitting on stones, rocks, walls, &c. Nat. ord., *Houseleeks* [Crassulaceæ]. Linn., 10-Decandria 4-Pentagynia.)

Annuals, by seeds, on raised dry places, such as banks and rock-works; perennials, by divisions and cuttings, which root most readily, and all of which prefer dry, sandy, loamy soil; the more tender of these may be grown in well-drained pots, in sandy loam and brick-rubbish, and treated as alpine. The greenhouse kinds require similar treatment, only a higher temperature, and to be kept even drier in winter.

HARDY ANNUALS, &c.

S. Andegave'nse (Andegavenny). $\frac{1}{2}$. Yellow. July.

Andegavenny. 1835.

— *Anderso'nii* (Anderson's). $\frac{1}{2}$. White. June.

Hungary. 1816. Biennial.

— *atra'tum* (dark-annual). $\frac{1}{2}$. Purple. August.

Italy. 1795.

— *Cepae'a* (*purslane-leaved*). 1. White. July.

France. 1640.

— *cæru'leum* (pale-blue). $\frac{1}{2}$. Pale blue. July.

Africa. 1822.

— *Calab'ricum* (Calabrian). 1. Whitish. July.

Calabria. 1835.

— *deltoid'eum* (triangular-leaved). Purple. June.

Naples. 1826.

— *fabaria* (fabarian). White. July. Europe.

1836. Biennial.

— *Magelle'nse* (Magellan). Yellow. July. Ma-

gellan. 1816.

— *mi'serum* (miserable). Green. July. Mexico.

1837. Greenhouse.

— *pa'llens* (pale). $\frac{1}{2}$. White. July. South Europe.

1816. Biennial.

- S. pallidum* (pale-red-flowered). $\frac{1}{2}$. Pale red. July. Caucasus. 1817.
 — *sexfidum* (annual-six-cleft). $\frac{1}{2}$. White. July. Caucasus. 1816.
 — *spathulatum* (spatulate). $\frac{1}{2}$. White. July. Hungary. 1815. Biennial.
 — *stellatum* (starred). $\frac{1}{2}$. Pink. July. South Europe. 1640.
 — *tetraphyllum* (four-leaved). White. July. Levant. Biennial.

HARDY EVERGREENS.

- S. nudum* (naked-branched). $\frac{3}{4}$. White. July. Madeira. 1777.
 — *Sieboldii* (Siebold's). $\frac{1}{2}$. Blue. July. Japan.
 — *teretifolium* (taper-leaved). $\frac{1}{2}$. White. England.
 — *viridulum* (greenish). $\frac{1}{2}$. Yellow. June. Europe. 1824.

HARDY HERBACEOUS.

- S. acre* (acid). 4. Yellow. June. Britain.
 — *diminutum* (less). $\frac{1}{2}$. Yellow. June. England.
 — *elongatum* (long-shooted). $\frac{1}{2}$. Yellow. June. England.
 — *eximium* (ever-living). 1. Yellow. August. Siberia. 1757.
 — *albescens* (whitish-leaved). $\frac{1}{2}$. Yellow. June. England.
 — *albicans* (great-white). 2. White. August. Europe. 1794.
 — *album* (white). $\frac{1}{2}$. White. June. England.
 — *micranthum* (small-flowered). $\frac{1}{2}$. White. June. England.
 — *Altaicum* (Altaic). 1. Yellow. June. Altaic Mountains. 1831.
 — *altissimum* (tallest). 1. Yellow. July. South Europe. 1769.
 — *anacampteros* (Anacampteros-like. Evergreen orpine). $\frac{1}{2}$. Purple. July. France. 1596.
 — *Anglicum* (English). $\frac{1}{2}$. White. July. Britain.
 — *Hibernicum* (Irish). $\frac{1}{2}$. White. July. Ireland.
 — *microphyllum* (small-leaved). $\frac{1}{2}$. White. July. Britain.
 — *anopetalum* (upward-leaved. Green). $\frac{1}{2}$. Pale yellow. July. South France. 1818.
 — *aurantiacum* (orange). $\frac{1}{2}$. Orange. June. France. 1820.
 — *cærulescens* (bluish-leaved). $\frac{1}{2}$. Yellow. July. 1820.
 — *dasyphyllum* (thick-leaved). $\frac{1}{2}$. White. June. England.
 — *dentatum* (toothed). $\frac{1}{2}$. Purple. June. 1810.
 — *elongatum* (lengthened). Yellow. May. Altai. 1827.
 — *Ewersii* (Ewer's). $\frac{1}{2}$. June. Siberia. 1829.
 — *Forsterianum* (Forster's). $\frac{1}{2}$. Yellow. July. Wales.
 — *fruticulosum* (small-shrubby). $\frac{1}{2}$. Yellow. Portugal. 1829.
 — *glaucum* (milky-green). $\frac{1}{2}$. Yellow. July. England.
 — *globulifolium* (globe-leaved). Yellow. June. 1838.
 — *Hispanicum* (Spanish). $\frac{1}{2}$. Pale yellow. June. Spain. 1732.
 — *hybridum* (hybrid). $\frac{1}{2}$. Yellow. June. Siberia. 1776.
 — *Ibericum* (Iberian). $\frac{1}{2}$. Pink. July. Spain.
 — *inoplocratum* (clustered). $\frac{1}{2}$. Yellow. July.
 — *latifolium* (broad-leaved). Greenish-white. August. Switzerland. 1794.
 — *lividum* (livid). $\frac{1}{2}$. White, green. July. 1816.
 — *micranthum* (small-flowered). White. June. England.

- S. multicaule* (many-stemmed). Yellow. May. Himalaya Mountains. 1838.
 — *neglectum* (neglected). 1. White. August. Naples. 1835.
 — *Notarjanni* (Notarjanni's). White. July. Naples. 1824.
 — *oblongum* (oblong). $\frac{1}{2}$. White. July. Britain.
 — *ochroleucum* (yellowish-white). 1. White. July. Greece. 1818.
 — *oppositifolium* (opposite-leaved). $\frac{1}{2}$. White. August. Caucasus.
 — *pectinatum* (comb-leaved). $\frac{1}{2}$. White. July. 1818.
 — *populifolium* (poplar-leaved). 1. White. August. Siberia. 1780.
 — *pusillum* (pretty). Purple. July. N. Amer. 1824.
 — *quadrifidum* (four-cleft). $\frac{1}{2}$. Yellow. July. New Asia. 1800.
 — *reflexum* (bent-back-leaved). 1. Yellow. June. England.
 — *collinum* (hill). 1. Yellow. 1815.
 — *recurvatum* (curled-back-green). $\frac{1}{2}$. Yellow. June. Europe. 1819.
 — *repens* (creeping). $\frac{1}{2}$. Red. June. Switzerland. 1826.
 — *rhodiola* (rose-scented). Yellow. June. Britain.
 — *roseum* (rosy). Rose. July. Caucasus. 1827.
 — *rupestre* (rock). $\frac{1}{2}$. Yellow. June. England.
 — *saxatile* (rock). $\frac{1}{2}$. June. South Europe. 1826.
 — *sempervivum* (houseleek-like). $\frac{1}{2}$. Deep purple. July. Iberia. 1825.
 — *septangulare* (seven-angled). $\frac{1}{2}$. Yellow. July. 1795.
 — *sexangulare* (six-angled). $\frac{1}{2}$. Yellow. July. England.
 — *spurius* (spurious). $\frac{1}{2}$. White. August. Caucasus. 1816.
 — *stenopetalum* (narrow-petaled). Golden. June. N. Amer. 1826.
 — *subclavatum* (slightly-clubbed). $\frac{1}{2}$. July. N. Amer. 1829.
 — *telephium* (common-orpine). 2. Purple. August. Britain.
 — *telephiodies* (orpine-like). 1. Purple. August. N. Amer. 1810.
 — *ternatum* (three-leafted). $\frac{1}{2}$. White. July. N. Amer. 1789.
 — *verticillatum* (whorl-leaved). 1. Pink. August. South Europe.
 — *villosum* (shaggy). $\frac{1}{2}$. Pink. June. Britain.
 — *virens* (green). $\frac{1}{2}$. Yellow. June. Portugal. 1774.
 — *virescens* (greenish). 1. Green, yellow. July. 1815.

SEED-ROOM. All that has been said relative to the *Fruit-room* is applicable to this. Everything promotive of decay or germination is to be avoided; and if one relative direction more than another requires to be urged upon the gardener, it is comprised in these words—*keep it as dry as possible*: the room may be even hot, so that it is not damp.

SELAGO. (From the Celtic *sel*, sight, and *jach*, salutary; supposed effects on the eyes. Nat. ord., *Selagids* [Selaginacæ]. Linn., 14-*Didynamia* 2-*Angiospermia*.)

Greenhouse evergreens, from the Cape of Good Hope. Cuttings of the points of shoots, or rather, the short, stubby side-shoots, taken off close to the stem, in spring and autumn, in sand,

under a bell-glass, but raised at night to prevent damping. Sandy loam and vegetable mould. The protection of a greenhouse; but many of them are worth a place in the flower-garden in summer.

- S. angustifolia* (narrow-leaved). August. 1819.
- bracteata (bracted). 1½. Purple. June. 1812.
- canescens (hoary). 1½. Pale purple. September. 1812.
- corymbosa (corymbed). 2. White. July. 1699.
- dentata (toothed). 1½. White. July. 1823.
- diffusa (spreading). 1½. Purple. July. 1807.
- distans (distant-flowered). 2. White. April. 1845.
- fasciculata (bundle-flowered). 1½. Blue. July. 1774.
- fruticosa (shrubby). Yellow. June. 1822.
- Gillii (Gill's). 1. Pale rose. March. 1829.
- heterophylla (various-leaved). 1. Purple. July. 1823.
- hispidia (bristly). Yellow. June. 1823.
- micrantha (small-flowered). Yellow. May. 1820.
- minutissima (smallest). Yellow. June. 1816.
- ovata (egg-headed). 1. Dark purple. 1774.
- polygaloides (milkwort-like). ¾. Purple. August. 1807.
- polystachya (many-spiked). White. June. 1823.
- ramulosa (small-branched). 1½. White. 1824.
- rapunculoides (rampion-like). 2. Violet. 1824.
- rotundifolia (round-leaved). 1. Purple. June. 1816.
- spicata (spiked). ¾. Purple. August. 1824.
- spinea (spiny). 3. Purple. 1824.
- spuria (spurious). 1. Violet. August. 1779.

SELANDRIA ÆTHIOPS. Pear Saw-Fly. The upper surface of Pear-tree leaves during the months of July, August, and September, are liable to be destroyed by what is very characteristically named the *slimy grub*. These grubs are nearly half an inch long, cylindrical, but thicker towards the head than at the other extremity. The whole body, except at the time of skin-casting, is covered with a sticky, greenish black matter, and from this they have been named. Whilst feeding, the fore part of the body is so swollen that the vermin looks somewhat like a small tadpole. If the slimy matter is removed from the body, this is found to be a grub or caterpillar with twenty feet, and of a pitchy

appears, and the grubs become of a clayey colour. They finally form a brown cocoon about October, and remain in the pupa state until the following June or July, when the perfect insect comes forth in the form depicted in the annexed cut, but of the size shown by the cross lines above it. It is known as the *Selandria Æthiops*. Linnaeus called it the Cherry Saw-Fly (*Tenthredo cerasi*), from the mistaken opinion that it attacked the leaves of that tree only, whereas its grubs are more frequently found on the leaves of the Pear. This fly is shining black, and the tips of the legs yellowish. The female lays her eggs on the upper surface of the leaves. The slime on the grub is of a peculiar nature, not being dried by exposure to the hottest sunshine.

SELF. A flower with petals of only one colour.

SELF-HEAL. *Prune'lla*.

SELLIGUEA. (Probably from the Japanese name. Nat. ord., *Ferns* [Polypodiaceæ]. Linn., 24-*Cryptogamia* 1-*Filices*.)

Stove, yellow-spored Ferns. See **FERNs**.

- S. flaveoens* (yellowish). May. E. Ind.
- Hamiltoni (Hamilton's). May. Nepal.
- heterocarpa (various-fruited). June. Java.
- macrophylla (large-leaved). May. Java.
- pothifolia (pothos-leaved). May. Nepal.

SEMECARPUS. Marking Nut-tree. (From *semeion*, a mark, and *karpus*, fruit; the black juice used for marking clothes. Nat. ord., *Anacards* [Anacardiaceæ]. Linn., 23-*Polygamia* 2-*Diacia*. Allied to *Anacardium*.)

Stove, greenish-yellow-flowered, evergreen trees. Cuttings of ripe shoots in sand, under a glass, in heat, in March or April; peat, loam, leaf-mould, and sand. Winter temp., 50° to 60°; summer, 60° to 90°.

- S. anacardium* (anacardium). 20. E. Ind. 1820.
- cuneifolium (wedge-leaved). 20. E. Ind. 1824.

SEMEIA'NDRA. (From *semeia*, a banner, and *aner*, an anther; referring to the petal-like appendage to each stamen. Nat. ord., *Onagrad* [Onagraceæ]. Linn., 2-*Diandria* 1-*Monogynia*.)

A greenhouse shrub, allied to *Fuchsia*, like which it may be cultivated.

- S. grandiflora* (large-flowered). 5. Scarlet. March, and throughout the summer. 1853.

SEMPERVIVUM. Houseleek. (From *sempervivo*, to live for ever; tenacity of life. Nat. ord., *Houseleeks* [Crassulaceæ]. Linn., 11-*Dodecandria* 7-*Dodecagynia*.)

Hardy and frame kinds, by division, and by cuttings, and most of them delight in dry, sandy soil, kept moist only when growing. Greenhouse



brown colour. At the last-but-one casting of its skin the sliminess no longer

kinds are also freely propagated by cuttings, dried for several days at the cut part; grown in sandy loam, leaf-mould, and brick-rubbish, and kept dry and in a state of rest in winter. Winter temp., 38° to 45°; summer, 55° to 75°.

HARDY HERBACEOUS.

- S. arachnoides* (cobwebbed). $\frac{1}{2}$. Purple. July. Italy. 1699.
 — *ma'fus* (large). $\frac{1}{2}$. Red. June. Italy.
 — *mi'nus* (small). $\frac{1}{2}$. Red. June. Italy.
 — *flagellifo'rme* (whip-formed). $\frac{3}{4}$. Reddish. July. Siberia. 1823.
 — *globi'ferum* (globe-bearing. *Hen and Chickens*). $\frac{1}{2}$. Yellow. June. Germany. 1733.
 — *hi'rtum* (hairy). 1. Cream. June. Italy. 1804.
 — *monta'num* (mountain). $\frac{1}{2}$. Red. June. Pyrenees. 1752.
 — *pu'milum* (dwarf). $\frac{1}{2}$. Pale red. June. Caucasus. 1824.
 — *tecto'rum* (roof. *Common*). 1. Purplish. July. Britain.

GREENHOUSE HERBACEOUS.

- S. dichotomum* (two-ranked). Yellow. July. Canaries. 1815. Biennial.
 — *dodranta'le* (nine-inch). $\frac{1}{2}$. Flesh. July. Teneriffe. 1815. Annual.
 — *micra'nikes* (small-flowered). $\frac{1}{2}$. Green, red. September. Canaries.
 — *stella'tum* (starred). $\frac{1}{2}$. Yellow. July. Madeira. 1790. Annual.

GREENHOUSE EVERGREENS.

- S. aizoides* (aizoon-like). Yellow. June. Madeira.
 — *arbo'reum* (tree). 9. Golden. July. Levant. 1640.
 — *variega'tum* (variegated-leaved). 4. Yellow. July. Levant. 1640.
 — *au'reum* (golden). 1. Yellow. July. Canaries. 1815.
 — *spu'rium* (spurious). 1. Yellow. July. Canaries. 1820.
 — *barba'tum* (bearded). 1. Yellow. July. Canaries. 1815.
 — *bifu'reum* (forked). 2. Madeira.
 — *caespito'sum* (turfy). $\frac{1}{2}$. Yellow. August. Madeira. 1815.
 — *Canarie'nse* (Canary). 1 $\frac{1}{2}$. White. June. Canaries. 1699.
 — *cilia'tum* (hair-fringed). 1 $\frac{1}{2}$. Pale yellow. Teneriffe. 1815.
 — *crue'ntum* (bloody). 2. Yellow. May. Canaries. 1834.
 — *frute'scens* (shrubby). 3. Yellow. Teneriffe. 1804.
 — *glandulo'sum* (glanded-leaved). 1. Yellow. April. Madeira. 1777.
 — *glutino'sum* (clammy). 1 $\frac{1}{2}$. Yellow. July. Madeira. 1777.
 — *polyphy'llum* (many-leaved). $\frac{1}{2}$. Red. August. Canaries. 1777.
 — *retu'sum* (large-bitten). 2. Yellow. July. Teneriffe. 1824.
 — *rupi'fraga* (rock-scenting). Yellow. May. Canaries. 1830.
 — *Smi'thii* (Smith's). 1. Pale yellow. July. Teneriffe. 1815.
 — *tabula'fo'rme* (table-shaped). 1 $\frac{1}{2}$. Yellow. July. Madeira. 1817.
 — *tortuo'sum* (twisted). $\frac{1}{2}$. Yellow. July. Canaries. 1779.
 — *u'rbicum* (city). 2. Yellow. July. Teneriffe. 1816.
 — *u'ri'ferum* (grape-bearing. *Uva de Guanches*). Yellow. Teneriffe. 1829.
 — *villo'sum* (shaggy). $\frac{1}{2}$. Yellow. June. Canaries. 1777.
 — *Youngia'num* (Young's). 3. Yellow. June. Canaries. 1842.

SENEC'ILLUS. (A diminutive of *senecio*. Nat. ord., *Compositae* [Asteraceæ]. Linn., 19-Syngenesia 2-Superflua. Allied to *Cineraria*.)

Hardy herbaceous perennials. Seeds, but more generally by divisions; rich, sandy loam, or even common garden-soil.

- S. glau'ca* (milky-green). 6. Yellow. July. Siberia. 1790.
 — *purpura'ta* (purple). Purple. June. Cape of Good Hope. 1816.

SENE'CIO. Groundsel. (From *senex*, an old man; naked receptacle compared to a bald head. Nat. ord., *Compositae* [Asteraceæ]. Linn., 19-Syngenesia 2-Superflua.)

So difficult are the species to determine, that twenty-one synonyms are added to *Senecio*. All yellow-flowered, where not otherwise specified; Annuals, by seeds in the open border, and in a slight hotbed; perennials, by seed, and division of the plant, and also in common garden-soil, shrubby kinds, by seeds, and easily by cuttings, and mostly requiring a little peat or dried leaf-mould along with the soil, and the protection of a cool greenhouse. The double varieties of *elegans* are much used in flower-gardens; but the single varieties are also very beautiful. The double varieties are preserved by cuttings in winter, and must be saved from damp.

HARDY ANNUALS, &c.

- S. ampulla'ceus* (flask-headed). 2. Texas. 1834.
 — *crassifo'lius* (thick-leaved). $\frac{1}{2}$. Purple. July. South Europe. 1815.
 — *divarica'tus* (straggling). 1 $\frac{1}{2}$. Purple. July. China. 1801. Greenhouse biennial.
 — *erube'scens* (ruddy). 2. Purple. July. Cape of Good Hope. 1774. Greenhouse biennial.
 — *Ga'llicus* (French). June. France.
 — *lanugino'sus* (woolly). 5. November. 1826.
 — *telephi'fo'lius* (telephium-leaved). 1. July. Cape of Good Hope. 1820.
 — *Valeriana'fo'lius* (Valerian-leaved). 4. July. Europe. 1800.

HARDY EVERGREEN.

- S. gibbo'sus* (swollen). June. Sicily. 1827.

GREENHOUSE EVERGREENS.

- S. argu'tus* (sharp-leaved). 3. July. Mexico. 1827.
 — *a'sper* (rough). 3. July. Cape of Good Hope. 1774.
 — *cinerarioi'des* (cineraria-like). July. Mexico. 1826.
 — *e'legans* (elegant). 2. Purple. July. Cape of Good Hope. 1700.
 — *fo're-a'lbo* (white-flowered). 1 $\frac{1}{2}$. White. July. Cape of Good Hope. 1700.
 — *ple'nus-a'lbus* (double-white). 1 $\frac{1}{2}$. White. July. Cape of Good Hope. 1700.
 — *ple'nus-ru'ber* (double-red). 2. Red. July. Cape of Good Hope. 1700.
 — *hamatophy'llus* (bloody-leaved). 2. April. 1789.
 — *halimifo'lius* (halimus-leaved). 3. July. Cape of Good Hope. 1723.
 — *ilicifo'lius* (ilix-leaved). 3. June. Cape of Good Hope. 1731.
 — *la'nceus* (spear-leaved). 3. August. Cape of Good Hope. 1731.
 — *L'Heritie'ri cyanophthalmus* (L'Heritier's blue-blossomed). Whitish-blue. June. Canaries. 1843. Herbaceous.

- S. lilacinus* (lilac). 6. Lilac. June. Cape of Good Hope. 1826.
 — *longifolius* (long-leaved). 3. September. Cape of Good Hope. 1775.
 — *persicifolius* (peach-leaved). 3. Purple. July. Cape of Good Hope. 1820.
 — *peucedanifolius* (peucedanium-leaved). 3. Purple. May. Cape of Good Hope. 1816.
 — *præcox* (early-flowering). 5½. Yellow.
 — *pseudochina* (bastard-Chinese). ½. July. E. Ind. 1792. Herbaceous.
 — *pubigerus* (downy). 2. Red. June. Cape of Good Hope. 1816.
 — *purpureus* (purple). 2. Purple. August. Cape of Good Hope. 1774. Herbaceous.
 — *reclinatus* (leaning). 2. Purple. July. Cape of Good Hope. 1774.
 — *rigescens* (stiffish-leaved). 3. July. Cape of Good Hope. 1815.
 — *rigidus* (hard-leaved). 3. July. Cape of Good Hope. 1704.
 — *rosmarinifolius* (rosemary-leaved). 3. July. Cape of Good Hope.
 — *scaber* (scurfy). 4. July. Cape of Good Hope. 1700. Herbaceous.
 — *solidagineus* (solidago-like). 2. July. Cape of Good Hope. 1824.
 — *speciosus* (showy). ½. Scarlet. July. China. 1789. Herbaceous.
 — *tussilaginis* (colt's-foot-leaved). 1. Purple. April. Teneriffe. 1829.
 — *venustus* (beautiful). 1½. Purple. August. Cape of Good Hope. 1774.

HARDY HERBACEOUS.

- S. Adonidifolius* (Adonis-leaved). 1. July. Europe. 1800.
 — *alpinus* (alpine). 2. July. South Europe. 1683.
 — *arachnoides* (spider-like). July. Italy. 1827.
 — *balsamitæ* (balsamita-like). June. N. Amer. 1819.
 — *Canadensis* (Canadian). 1½. July. N. Amer. 1820.
 — *cordifolius* (heart-leaved). 2. July. Austria. 1749.
 — *coriaceus* (leathery-leaved). 4. July. Levant. 1728.
 — *Croaticus* (Croatian). 4. July. Hungary. 1805.
 — *croceus* (reddish-yellow). June. Austria. 1822.
 — *cruentus* (bloody). Purple. April. Teneriffe.
 — *decepiens* (deceiving). May. Cape of Good Hope. 1821.
 — *delphinifolius* (larkspur-leaved). 1. July. Barbary. 1800.
 — *eudorus* (sweet-scented). July. 1815.
 — *frigidus* (cold). May. N. Amer. 1827.
 — *Japonicus* (Japan). 1. August. Japan. 1774.
 — *leucophyllus* (white-leaved). 1. July. South Europe. 1816.
 — *lyratifolius* (lyre-leaved). 2. July. Austria. 1749.
 — *microphyllus* (small-leaved). 4. July. Caucasus. 1818.
 — *nemorensis* (grove). 3. July. Austria. 1785.
 — *odoratus* (sweet-scented). N. Holland.
 — *othona* (othona-like). 2. Pink. July. Iberia. 1816.
 — *ovatus* (egg-leaved). 3. September. Germany. 1823.
 — *pratensis* (meadow). June. Galicia. 1828.
 — *Smithii* (Smith's). Pink. July. Cape Horn. 1801.
 — *tarasacifolius* (dandelion-leaved). June. Caucasus. 1824.
 — *Tournefortii* (Tournefort's). 3. July. Pyrenees. 1810.
 — *umbrosus* (shady). 2. July. Hungary. 1815.
 — *uniflorus* (one-flowered). ½. July. Alpine Europe. 1789.

SENSITIVE FERN. *Onoclea sensibilis*.SENSITIVE PLANT. *Mimosa pudica*.

There are several other plants which give evidence of being sensitive. The Venus Fly-Trap (*Dionæa muscipula*) has jointed leaves, which are furnished on their edges with a row of strong prickles. Flies, attracted by honey which is secreted in glands on their surface, venture to alight upon them. No sooner do their legs touch these parts than the sides of the leaves spring up, and, locking their rows of prickles together, squeeze the insects to death. *Oxalis sensitiva* and *Smittia sensitiva* are similarly irritable, as the filaments of the stamens of the Berberry. One of this sensitive tribe, *Desmodium gyrans*, has a spontaneous motion; its leaves are frequently moving in various directions, without order or co-operation. When an insect inserts its proboscis between the converging anthers of a Dog's Bane (*Apoecynum androsaemifolium*), they close with a power usually sufficient to detain the intruder until death.

SE'PTAS. (From *septem*, seven; the number prevailing in the parts of the flower. Nat. ord., *Houseleeks* [*Crassulaceæ*]. Linn., 7-*Heptandria* 4-*Heptagynia*.)

Greenhouse, white-flowered evergreens, from the Cape of Good Hope. Increased by division of the roots; plants kept dry in winter; sandy loam and brick-rubbish. Winter temp., 38° to 45°.

S. Capeensis (Cape). ½. August. 1774.

— *globiflora* (globe-flowered). ½. March. 1809.

— *umbella* (umbelled). ½. July. 1800.

SERICO'GRAPHIS. (From *serikos*, silk, and *grapho*, to write. Nat. ord., *Acanthads* [*Acanthaceæ*]. Linn., 14-*Didynamia* 2-*Angiospermia*. Allied to *Aphelandra*.)

Stove half-herbaceous perennial. Easily increased by cuttings. For culture, see JUSSTICIA.

S. Ghiesbreghtiana (Ghiesbreght's). 3. Scarlet. October. 1846.

SERI'NGIA. (Named after *M. Seringa*, a Swiss botanist. Nat. ord., *Byttneriads* [*Byttneriaceæ*]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Lasiopetalum*.)

Greenhouse evergreen. Cuttings of young shoots in sand, under a bell-glass, in April or May; sandy peat one part, sandy, fibry loam two parts. Winter temp., 40° to 48°.

S. platyphylla (broad-leaved). 12. White. June. N. Holland. 1822.

SERI'OLA. (From *seris*, succory; as the species resemble this plant. Nat. ord., *Compositæ* [*Asteraceæ*]. Linn., 19-*Syn-genesia* 1-*Æqualis*.)

All hardy herbaceous plants, except *rubescens*, which is annual, and all natives of Sicily. Seed

sown in early spring, in any common garden-soil. This genus has had for its synonymes *Agno'ra* and *Rodi'gia*.

- S. Ætne'nsis* (Ætna). 3. Yellow. July. 1763.
- *at'bicans* (whitish). 1. Yellow. May. 1828.
- *aspargi'o'ides* (aspargia-like). 1. Yellow. May. 1829.
- *glau'ca* (milky-green). 1. Yellow. May. 1828.
- *rube'scens* (reddish). 2. Red. July. 1829. Annual.
- *w'rens* (stinging). 2. Yellow. July. 1773.

SERR'SSA. (Name of a plant mentioned by Dioscorides. Nat. ord., *Cinchonads* [*Cinchonaceæ*]. Linn., 5-*Pentandria* 1-*Monogynia*.)

Greenhouse, white-flowered evergreens, from Japan. Cuttings in spring, under a glass; loam, peat, and sand. Probably hardy in the south of England.

- S. fœ'tida* (stinking). 2. May. 1787.
- *multi'ples* (double-flowered). May.

SERRA'TULA. Sawwort. (From *serra*, a saw; edges of the leaves. Nat. ord., *Compositæ* [*Asteraceæ*]. Linn., 19-*Syn-genesia* 1-*Æqualis*.)

Perennials, by seeds and divisions in spring; annuals, by seed; common garden-soil. All purple-flowered, except where otherwise stated.

HARDY BIENNIALS.

- S. leuca'ntha* (white-flowered). White. July. Spain. 1825. Annual.
- *ni'tens* (shining). 2. July. Caucasus. 1823.
- *radi'a'ta* (rayed). 2½. July. Hungary. 1800.
- *Transylva'nica* (Transylvanian). 2. July. Transylvania. 1818.

HARDY HERBACEOUS.

- S. ala'ta* (winged). 2. July.
- *argu'ta* (sharp-toothed). 3. September. Hungary. 1824.
- *Ca'spica* (Caspian). 2. July. Caspian. 1820.
- *centaurio'i'des* (centaury-like). 1. July. Siberia. 1804.
- *corona'ta* (crowned). 5. July. Siberia. 1799.
- *cya'no'i'des* (cyanus-like). 2. Red. July. Siberia. 1778.
- *cyna'ro'i'des* (cynara-like). 3. July. Pyrenees. 1640.
- *depre'ssa* (depressed). 1. July. Caucasus. 1818.
- *e'legans* (elegant). 2. July. Caucasus. 1819.
- *heterophy'lla* (various-leaved). 2. July. Dauphiny. 1824.
- *Kitaibel'i'i* (Kitaibel's). 2. July. Hungary. 1818.
- *multi'flora* (many-flowered). 2. July. Siberia. 1816.
- *ni'tida* (shining). 2. July. Siberia. 1827.
- *Panno'nica* (Hungarian). 2. July. Hungary. 1810.
- *si'mplex* (simple). 1. July. Nepaul. 1821.

SERRU'RIA. (Named after J. Serrurier, a German botanist. Nat. ord., *Proteads* [*Proteaceæ*]. Linn., 4-*Tetrandria* 1-*Monogynia*. Alliance near *Leucospermum*.)

Greenhouse, Cape of Good Hope evergreens; purple-flowered, except where otherwise specified. Cuttings of ripe shoots in sand, under a bell-glass, and kept cool, the glass being raised and frequently removed at night, to prevent damping, the cuttings at the time protected by a frame or pit; light, fibry loam, with a portion of charcoal

and broken bricks or freestone. Winter temp., 35° to 48°, with a shaded position for the pots in the heat of summer; the heads will stand the sun freely if the roots are protected.

S. abrotanifo'lia (southernwood-leaved). 4. Pink. 1803.

- *acroca'rpa* (pointed-fruited). Lilac. April. 1822.
- *adsc'e'ndens* (ascending). 2. 1819.
- *æ'mula* (rival). 3. 1803.
- *arena'ria* (sand). 1. 1803.
- *Burma'n'ni* (Burmans's). 2½. 1786.
- *cilia'ta* (hair-fringed). 2. 1803.
- *cya'no'i'des* (cyanus-like). 1½. 1803.
- *decu'mbens* (lying-down). 1. 1818.
- *diffu'sa* (straggling). 3. 1810.
- *eleva'ta* (elevated). Lilac. April. 1821.
- *elonga'ta* (lengthened). 1½. 1800.
- *emargina'ta* (end-notched). 2. Pink. 1800.
- *flagella'ris* (whip). 2. 1816.
- *flori'da* (flowery). 2. 1824.
- *glabe'rri'ma* (very smooth). 1. 1825.
- *glomera'ta* (crowded). 3. 1789.
- *Nive'ni* (Niven's). 1½. 1800.
- *odora'ta* (sweet-scented). 2. Pink. 1803.
- *phylico'i'des* (phylica-like). 3. 1789.
- *pinn'a'ta* (leafleted). 1. Pink. 1803.
- *Roxbu'rghii* (Roxburgh's). 3. White. 1805.
- *rubrica'u'tis* (red-stemmed). 2. 1818.
- *scario'sa* (membranous). Lilac. 1816.
- *squarro'sa* (spreading). 2. 1810.

SERVIC. (*Py'rus so'rbus*.) There are three varieties: Apple-shaped, Pear-shaped, and Berry-shaped.

Propagation.—By *Grafting* on the apple, medlar, and hawthorn.

By *Cuttings* and by *Seed*, as directed for the *Apple*.

Soil.—Clayey loam, well drained, suits it best.

Culture.—They are best trained as dwarf standards or espaliers. See **MEDLAR**.

Gather the fruit in autumn, and treat it like that of the Medlar.

SESBA'NIA. (From *sesban*, the Arabic name of *S. Ægyptia'ca*. Nat. ord., *Leguminous Plants* [*Fabaceæ*]. Linn., 17-*Diadelphia* 4-*Decandria*. Alliance near *Clianthus*.)

All yellow-flowered. Annuals require to be sown in a hotbed, in April, and flowered either in the plant-stove or a warm greenhouse; shrubs, by cuttings of the half-ripened, stubby shoots in sand, under a bell-glass, in bottom-heat; fibry loam and sandy peat. Winter temp., 60°; summer, 60° to 90°, with abundance of moisture.

STOVE EVERGREENS.

- S. Ægyptia'ca* (Egyptian). 4. July. Egypt. 1680.
- *occidenta'lis* (western). 4. July. W. Ind. 1816.

STOVE ANNUALS.

- S. aculea'ta* (prickly). 4. July. E. Ind. 1690.
- *aff'nis* (kindred). 3. July. E. Ind. 1800.
- *gra'cilis* (slender). 3. July. 1820.
- *pi'cta* (painted). 6. July. W. Ind. 1823. Biennial.
- *puncta'ta* (red-spotted). 3. July. Guinea. 1825.
- *seri'cea* (silky). 3. July. E. Ind. 1818.

Sets are the tubers, or portions of tubers, employed for propagating pota-

toes and other tuberous-rooted plants. It may be accepted as a rule universally applicable to them, that a moderately-sized whole tuber is always to be preferred to a cutting of a tuber.

SETTING is fertilizing the female blossoms with pollen from the male blossoms. A plant is said to be a *sky setter* when this fertilizing is apt to fail.

SEVERINIA. A doubtful name for the Box-leaved Orange. (*Citrus buxifolia*.)

SEYMERIA. (Named after H. Seymer, an English naturalist. Nat. ord., *Fig-worts* [Scrophulariaceæ]. Linn., 14-*Didynamia* 2-*Angiosperma*.)

Hardy, yellow-flowered annuals, from North America. Seeds in April, in a peat-border.

S. pectinata (comb-leaved). 1. July. 1820.

— *tenuifolia* (fine-leaved). 1. July. 1730.

SHADDOCK. *Citrus decurva*na.

SHADES are for prolonging the time of a plant's blooming, or promoting the rooting of cuttings, by excluding the sunlight. See CUTTINGS, SCREENS, and TULIP.

SHALLOT. See ESCHALLOT.

SHANKING is the technical term for a gangrene which attacks the footstalks of grapes and the stems of cabbages which have vegetated through the winter. The shanking of the *grape* appears to be occasioned by the soil becoming exhausted, or by its temperature being too much below that in which the branches are vegetating; and, consequently, the supply of sap to the grapes being too much diminished, the parts which thus fail of support immediately begin to decay: this is an effect always the consequence of a diminished supply of sap, apparent either in the leaves, flower, or fruit. Shanking rarely appears in the grape if the roots of the vine are within the house. Shanking in the *cabbage* arises from a very different cause, viz., the freezing of the stalk of the cabbage just where it comes in contact with the soil. The best preventive is dressing the soil with salt, about five bushels per acre, late in the autumn, and sprinkling charred vegetable matters among them. See DAMPING-OFF.

SHARP CEDAR. *Aca'cia oxyce'drus* and *Juni'perus oxyce'drus*.

SHIELD FERN. *Aspi'dium*.

SHEEP LAUREL. *Ka'lmia angustifo'lia*.

SHEEP'S SCABIOUS. *Jasio'ne*.

SHELLS. See ANIMAL MATTERS.

SHELTER. See SCREEN.

SHE-OAK. *Casua'ri'na quadri'valvis*.

SHEPHERD'S BEARD. *Arnopo'gon*.

SHEPHERD'S CLUB. *Verba'scum tha'psus*.

SHEPHE'RDIA. (Named after the late W. Shepherd, curator of the Botanic Garden. Nat. ord., *Oleasters* [Elaeagnaceæ]. Linn., 22-*Diaecia* 4-*Tetrandria*. Allied to *Hippophaë*.)

Hardy deciduous shrubs, from North America. Generally by suckers; frequently by seeds; deep, sandy loam. Good shrubs for lawns or shrubberies.

S. argentea (silvery). 10. April. 1820.

— *Canade'nsis* (Canadian). 10. April. 1759.

SHIFTING. See POTTING and ONE-SHIFT SYSTEM.

SHREDS for fastening trees to walls, &c., are best made of the list or selvaige torn from black or blue cloth, and may be obtained of any tailor. The smallest possible number of shreds, and the narrowest consistent with strength, should be employed; for wherever the shred envelopes the branch, the wood beneath is never so well ripened as those parts exposed to the light and air, which are so essential to enable the bark to assimilate and separate from the sap those secretions which are required for the next year's growth. Shreds should always be long enough to permit the ends to be doubled over, so that the nail may pass through four thicknesses of the cloth, otherwise they look ragged, and are liable to tear away from the nail. If old shreds are re-used, they should be previously boiled for a few minutes to destroy any insect-eggs, or larvæ, they may contain.

SHRIVELLING of the berries of the grape in stoves arises from the roots of the vine not supplying a sufficiency of sap. This occurs if the roots are in a cold, heavy soil, or are vegetating in an outside border, the temperature of which is too low compared with that of the stove. In the first case, thorough draining and the incorporation of calcareous rubbish; and in the second case, protection to the border and stem, will remove the evil.

SHRUBBERY is a garden, or portion of a garden, devoted to the cultivation of shrubs.

SHRUBS are trees of a dwarf growth, not exceeding in height twelve or fifteen feet, unless they are climbers, and having, if permitted, branches and foliage clothing the entire length of their stems.

SHUTE'RIA. See CONVO'LVULUS BY COLOR.

SHUTTING-UP is closing the lights of frames, pits, greenhouses, and stoves, which have been opened for the admission of air.

SIBBA'LDIA. (Named after *Dr. Sibbald*, of Edinburgh. Nat. ord., *Roseworts* [Rosaceæ]. Linn., 5-Pentandria 5-Pentagynia. Allied to *Potentilla*.)

Seeds, but chiefly by division of the plant in spring; fibry, sandy loam, and fibry peat. They are best kept as little alpine, in pots, protected from frost and wet in winter, and shaded from the midday sun in summer.

S. erecta (upright). 1. Pink. July. Siberia. 1806. Herbaceous.

— *parviflora* (small-flowered). 4. Yellow. July. Cappadocia. Herbaceous.

— *procrumbens* (lying-down). 4. Yellow. July. Britain. Evergreen trailer.

SIBERIAN CRAB. *Pyrus prunifolia*.

SIBERIAN PEA-TREE. *Caragana*.

SIBTHORPIA. (Named after *Dr. Sibthorp*, of Oxford. Nat. ord., *Figworts* [Scrophulariaceæ]. Linn., 14-Didynamia 2-Angiospermia.)

Yellow-flowered trailers. Seeds and divisions of the plant in spring; moist, sandy, shady peat-border. *Prostrata* requires the protection of a greenhouse in winter.

S. Europæa (European). 4. July. England.

— *prostrata* (trailing). 4. June. Madeira. 1771.

SIDA. A name adopted from Theophrastus for an extensive group of *Mal-lowworts*, of which the true generic name is *Cristaria*, and the best species are removed to *Abutilon*.

SIDERITIS. Ironwort. (From *sideros*, iron; supposed power of healing wounds by iron. Nat. ord., *Lipworts* [Lamiaceæ]. Linn., 14-Didynamia 2-Angiospermia. Allied to *Marubium*.)

Yellow-flowered, except where otherwise specified. Seeds; cuttings under a hand-light in summer; division of the plant in spring; dry, sandy, or chalky soil; well fitted for knolls and banks.

HARDY HERBACEOUS.

S. Roma'na (Roman). 1. July. Italy. 1740. Annual.

— *serrata* (saw-leaved). 1. August. Spain. 1818.

— *spinosâ* (spiny). 14. August. Spain.

HARDY EVERGREENS.

S. scordioïdes (scordium-like). 1. September. France. 1597.

— *alpina* (alpine). 1. July. Pyrenees. 1827.

— *angustifolia* (narrow-leaved). 1. July. Pyrenees. 1597.

— *elongata* (lengthened). August. Spain. 1822.

— *Taurica* (Taurian). 14. July. Tauria. 1822.

HALF-HARDY EVERGREENS.

S. angustifolia (narrow-leaved). 1. July. Spain. 1820.

— *chamædrifolia* (germander-leaved). 1. July. Spain. 1816.

— *ilicifolia* (holly-leaved). 14. July. Levant.

S. ince'na (hoary). 14. July. Spain. 1752.

— *leucantha* (white-flowered). 1. White. July. Spain. 1823.

— *perfoliata* (leaf-stem-pierced). 2. September. Levant. 1731.

— *Syr'aca* (Syrian). 14. July. Levant. 1597.

SIDERODENDRON. Iron-tree. (From *sideros*, iron, and *dendron*, a tree; from hardness of wood. Nat. ord., *Cinchonads* [Cinchonaceæ]. Linn., 4-Tetrandria 1-Monogynia. Alliance near to *Ixora*.)

Stove evergreen tree. Cuttings of ripe shoots in sand, under a bell-glass, and in a moist heat; sandy, fibry loam, fibry peat, and leaf-mould. Winter temp., 50° to 60°; summer, 60° to 80°.

S. triflorum (three-flowered). 20. Pink. W. Ind. 1793.

SIEGESBECKIA. (Named after *J. G. Siegesbeck*, a German botanist. Nat. ord., *Composites* [Asteraceæ]. Linn., 19-Syn-genesia 2-Superflua. Alliance near *Eclipta*.)

Hardy, yellow-flowered annuals. Seeds in a hothed, in April; seedlings pricked off, and finally turned out into the flower-garden in the beginning of June; rich, light, sandy soil.

S. cordifolia (heart-leaved). 20. August. Mexico. 1826.

— *Iberica* (Iberian). 1. White. August. Iberia. 1818.

— *orientalis* (eastern). 2. September. India. 1730.

— *triangularis* (triangular). 2. August. Mexico. 1825.

SIEVER'SIA. (Named after *M. Sievers*, a Russian botanist. Nat. ord., *Roseworts* [Rosaceæ]. Linn., 12-Icosandria 3-Polygynia. Allied to *Geum*.)

Hardy, yellow-flowered, herbaceous perennials. Seeds, and division of the plant in spring; light, sandy soil.

S. anemonoides (anemone-like). 4. July. Kamtschatka. 1820.

— *Atlantica* (Atlantic). May. South Europe. 1810.

— *glacialis* (icy). 4. July. Siberia. 1819.

— *montana* (mountain). 4. July. Austria. 1597.

— *Peckii* (Peck's). 4. July. N. Amer. 1826.

— *reptans* (creeping). 4. July. Switzerland. 1597.

— *rosea* (rosy). 4. May. Rocky Mountains. 1827.

— *triflora* (three-flowered). 4. July. Louisiana. 1826.

SILENE. Catchfly. (From *sialon*, saliva; from the gummy secretion on the leaves of some, which entraps small flies. Nat. ord., *Cloveworts* [Caryophyllaceæ]. Linn., 10-Decandria 3-Trigynia.)

All freely by seeds. Annuals, in the open garden, in April, and many, if sown in September, will bloom very early; the low-growing ones are very suitable for knolls and rock-works. Herbaceous ones also by division, and by cuttings of the young shoots in sand, under a hand-light, in summer; shrubby ones by similar means; rich, sandy loam.

GREENHOUSE BIENNIALS.

S. crassifolia (thick-leaved). 1. Brown. July. Cape of Good Hope. 1774.

— *gigantea* (gigantic). 3. White. June. Africa. 1738.

— *ornata* (ornamental). 2. Purple. July. Cape of Good Hope. 1775.

S. undulata (wavy). 1½. Red. August. Cape of Good Hope. 1775.

HALF-HARDY HERBACEOUS.

- S. acaulis* (stemless). ½. Rose. July. Britain.
 — *alba* (white). ½. White. July. Britain.
 — *fe'mina* (female). Red. July. Scotland.
 — *exscapa* (scapeless). ½. Red. July. Switzerland. 1819.
 — *ma's* (male). Rose. July. Scotland.
 — *faba'ria* (faba-leaved). ½. White. July. Sicily. 1731.
 — *fruticosa* (shrubby). 1½. Pink. June. Sicily. 1699. Evergreen.
 — *Mocinia'na* (Mocini's). 1. Purple. June. Mexico. 1827.
 — *speciosa* (showy). 1. Scarlet. June. 1843.

HARDY ANNUALS, &c.

- S. Ægypti'aca* (Egyptian). 1. Pink. July. Egypt. 1800.
 — *arme'ria* (Sweet William). 1½. Pink. August. England.
 — *alba* (white). White.
 — *ascendens* (ascending). ¾. Red. June. Spain. 1822.
 — *atocion* (atocion). ¾. Pink. June. Levant. 1781.
 — *bicolor* (two-coloured). 1. Striped. June. France. 1820.
 — *Canarie'nsis* (Canary). ½. Red. June. Madeira. 1822.
 — *cerastoides* (cerastium-like). ¾. White. July. South Europe. 1732.
 — *cheiranthifolia* (wallflower-leaved). 1. Red. July. Swan River. 1821.
 — *colorata* (coloured). 1. Purple. June. Morocco. 1819.
 — *compacta* (compact). 1½. Pink. August. Caucasus. 1823. Biennial.
 — *congesta* (crowded). 1. Pink. June. Greece. 1818.
 — *Cretica* (Cretan). ¾. Green, white. July. Crete. 1732. Biennial.
 — *Cserei'i* (Cserei's). ¾. White. June. 1824.
 — *cylindrifolia* (cylindrical-flowered). 1. Red. June. Levant. 1824. Biennial.
 — *discolor* (various-coloured). ¾. Red. April. Greece. 1817.
 — *diversifolia* (various-leaved). 1. Purple. June. 1820.
 — *elegant* (elegant). 1½. White. June. Portugal. 1819.
 — *geminifolia* (twin-flowered). 1. Purple. June. 1816.
 — *gracilis* (slender). 1. White. July. 1823.
 — *hispida* (bristly). 1. Cream. June. Barbary. 1817.
 — *Iberica* (Iberian). 1. White. June. Iberia. 1823.
 — *imbricata* (imbricated). 1½. White. June. N. Africa. 1818.
 — *Italica* (Italian). 1½. White. May. Italy. 1759. Biennial.
 — *juvenalis* (youthful). 2. White. June. 1835.
 — *la'cera* (torn). 1½. White. July. Caucasus. 1818. Biennial.
 — *laxifolia* (loose-flowered). 1. White. June. Spain. 1820.
 — *linifolia* (flax-leaved). 1. Green, yellow. July. Portugal. 1817.
 — *longicaulis* (long-stemmed). 1. Red. June. Spain. 1818.
 — *Lusit'ana* (Portuguese). 1. Pink. June. Portugal. 1732.
 — *multiflora* (many-flowered). 1. White. June. Hungary. 1794. Biennial.
 — *nemor'alis* (grove). 1. White. June. Hungary. 1816. Biennial.
 — *noctiflora* (night-flowering). 2. Pink. July. England.

S. nocturna (night). 2. Brown. July. South Europe. 1683.

- *nyctantha* (night-flowered). 1½. Brown. July. 1815.
 — *Oliveria'na* (Oliver's). Red. July. Aleppo. 1818.
 — *orchidea* (orchid-like). Rose. June. Levant. 1781.
 — *pendula* (drooping). 1. Red. June. Sicily. 1731.
 — *perfoliata* (leaf-stem-pierced). 1½. Red. June. Levant. 1817. Biennial.
 — *pic'ta* (painted). 2. Pink. July. France. 1817.
 — *Porte'nsis* (Oporto). 1. Pink. July. Portugal. 1759.
 — *Psamm'itis* (Psammitis). 1½. Cream. June. 1818. Biennial.
 — *pumilio* (dwarf). ¾. Pink. June. Germany. 1823.
 — *quinque-vulnera* (five-wounded). 1. Blood. July. England.
 — *ramosa* (branchy). 1. White. July. Barbary. 1820.
 — *ramosissima* (branchiest). 1½. Rose. June. Candia. Biennial.
 — *reticulata* (netted). 1. Rose. July. Barbary. 1804.
 — *rubella* (small-red). ¾. Flesh. May. Portugal. 1735.
 — *sabuleto'rum* (gravel-pit). 1. Purple. June. 1818.
 — *secundiflora* (side-flowering). 1. Purple. June. Spain. 1820.
 — *sericea* (silky). 1½. Pink. July. South Europe. 1801.
 — *spatulata* (spatulate). ¾. Purple. June. Caucasus. 1823. Biennial.
 — *stricta* (upright). 1½. Purple. June. Spain. 1802.
 — *tenuifolia* (fine-leaved). 1. Purple. June. Dahuria. 1820.
 — *tridentata* (three-toothed). ¾. Pink. May. Barbary. 1823.
 — *undulifolia* (wavy-leaved). Red. June. Sardinia. 1829.
 — *vespertina* (evening). 2. Rose. July. Britany. 1796.
 — *viscosa* (clammy). 2. White. June. Levant. 1731. Biennial.
 — *viscosissima* (clammiest). 1. June. Naples. 1824.

HARDY HERBACEOUS.

- S. Alta'ica* (Altaic). 1. Yellowish. August. Altai. 1831.
 — *ana'na* (pleasing). 1. White. July. Tartary. 1779.
 — *angustifolia* (narrow-leaved). 1. White. July. Europe. 1817.
 — *aprica* (sunny). Russia. 1837.
 — *cæpito'sa* (turfy). ¾. Pink. June. Caucasus. 1822.
 — *campanula* (bell-flowered). ¾. Green, white. July. Piedmont. 1823.
 — *ca'na* (hoary). 1½. Red. June. 1824.
 — *Ca'spica* (Caspian). ¾. Pink. June. Caucasus. 1823.
 — *Catesba'ya* (Catesby's). 1. Pink. June. Carolina. 1810.
 — *catholica* (universal). 1½. Green, white. August. Italy. 1711.
 — *chlorafolia* (chlora-leaved). 1. Lilac, yellow. August. Armenia. 1796.
 — *chlorantha* (pale-flowered). 1½. Green, white. July. Germany. 1732.
 — *ciliata* (hair-fringed). ¾. Purple. June. Crete. 1804.
 — *cordifolia* (heart-leaved). ¾. Pink. June. Piedmont. 1819.
 — *Co'srica* (Corsican). 1. Purple. June. Corsica. 1820.
 — *depressa* (depressed). ¾. White. June. Iberia. 1816.
 — *effusa* (spreading). 1. White, yellow. July. Volga. 1823.
 — *ela'ta* (tall). 3. White. June. Tauria. 1819.
 — *fimbriata* (fringe-flowered). 2½. White. June. Caucasus. 1803.

- S. flave'scens* (yellowish). 1. Yellow. June. Hungary. 1804.
 — *glauco'folia* (milky-green-leaved). 4. Red. June. Spain. 1820.
 — *graminifo'lia* (grass-leaved). 2. White. June. Altai. 1819.
 — *gyppo'phila* (chalk-loving). 4. White. June. 1822.
 — *Hispa'nica* (Spanish). 4. Red. June. Spain. 1819.
 — *infla'ta* (inflated). 1. White. July. Britain.
 — — *hirsu'ta* (hairy). White. Britain.
 — *infra'ta* (broken). White. July. Hungary. 1800.
 — *lacinia'ta* (cut-petaled). 14. Scarlet. July. S. Amer. 1823.
 — *latifo'lia* (broad-leaved). 1. White. July. Barbary. 1817.
 — *longifo'ra* (long-flowered). 14. Lilac, purple. August. Hungary. 1793.
 — *mar'i'tima* (sea). 2. White. August. Britain.
 — — *flore'ple'no* (double-flowered). 1. White. August. England.
 — *mollis'sima* (softest). 1. Pink. August. Italy. 1739.
 — *ocymo'i'des* (basil-like). 1. April. 1823.
 — *ova'ta* (egg-leaved). 1. White. June. N. Amer. 1820.
 — *parado'xa* (paradoxical). 1. Pink. July. Europe.
 — *parvifo'lia* (small-leaved). 14. Pink. June. 1817.
 — *pa'tula* (spreading). 1. White. July. Barbary. 1823.
 — *Pennsylv'a'nica* (Pennsylvanian). 1. Red. June. N. Amer. 1806.
 — *petre'a* (rock). 4. White. July. Hungary. 1822.
 — *pilo'sa* (shaggy). White. August. Europe. 1739.
 — *polyphy'lia* (many-leaved). 1. White. June. Austria. 1800.
 — *procu'mbens* (lying-down). 4. Pink. June. Siberia. 1823.
 — *pube'scens* (downy). 1. Purple. July. Corsica. 1818.
 — *quadridenta'ta* (four-toothed). 4. White. June. Alps. 1822.
 — *quadrifi'da* (four-cleft). 4. White. June. Verona. 1818.
 — *refle'xa* (bent-back). 1. Purple. June. South Europe. 1726.
 — *re'gia* (royal). 14. Crimson. June. N. Amer. 1811.
 — *re'pens* (creeping). 1. Pink. August. Siberia. 1823.
 — *Requie'nii* (Requien's). 4. White, red. June. Corsica. 1823.
 — *saxi'fraga* (saxifrage). 4. Flesh. July. France. 1640.
 — *Schaf'ta* (Schafsta). 4. Rose. April. Keridach. 1844.
 — *Sibi'rica* (Siberian). 14. Rose. July. Siberia. 1773.
 — *spergulifo'lia* (spurry-leaved). 4. White. June. Armenia. 1817.
 — *stella'ta* (star-leaved). 1. White. July. N. Amer. 1696.
 — *styl'o'sa* (large-styled). 4. Yellowish. July. 1831.
 — *sup'i'ne* (supine). 4. Pink. July. Caucasus. 1804.
 — *Tata'rica* (Tartarian). 2. White. July. Russia. 1796.
 — *te'mis* (slender). 4. Cream. July. Siberia. 1816.
 — *Valle'sii* (Valtesian). 4. Flesh. July. Switzerland. 1765.
 — *Virgi'nica* (Virginian). 1. Purple. July. N. Amer. 1783.
 — *viscagino'i'des* (viscago-like). 4. Pink. June. Dauria. 1824.
 — *Wolge'nsis* (Wolga). Green, yellow. July. Wolga. 1824.

SILK COTTON-TREE. *Bo'mbax*.

SILK-TREE. *Aca'cia julibri'ssin*.

SIMARU'BA. (The Guiana name. Nat.

ord., *Quassiads* [Simarubaceæ]. Linn., 10-Decandria 1-Monogynia. Allied to Quassia.)

Stove, yellowish-white-flowered evergreens, from the West Indies. Cuttings of the ripe shoots in sand, under a bell-glass, and in a strong, moist heat; fibry peat, and light, fibry loam. Winter temp., 55° to 65°; summer, 65° to 85°.

S. exco'lsa (lofty). 40. 1818.

— *glau'ca* (milky-green). 1824.

— *officina'lis* (shop). 10. 1789.

SINA'TIS. Mustard. (From the Celtic *nap*, applied to the cabbage tribe. Nat. ord., *Crucifers* [Brassicaceæ]. Linn., 15-Tetradynamia.)

Hardy, yellow-flowered annuals. See MUSTARD.

S. al'ba (white). 3. June. Britain.

— *frute'scens* (shrubby). 14. July. Madeira. 1777.

— *ni'gra* (black). 4. May. Britain.

— *tur'gida* (turgid). 4. May. Britain.

— *laevig'a'ta* (smooth). 4. May. E. Ind. 1819.

— *nudicaul'is* (naked-stemmed). 1. June. Spain. 1818.

SINGA'NA. (From *singa-singa*, the name in Guiana. Nat. ord., *Capparids* [Capparidaceæ]. Linn., 13-Polyandria 1-Monogynia. Allied to *Cratæva*.)

Stove evergreen climber. Cuttings of firm side-shoots in sand, under a bell-glass, and in bottom-heat, in May; sandy loam and fibry peat. Winter temp., 55° to 65°; summer, 60° to 85°.

S. Guiane'nsis (Guianan). White. June. Guiana. 1827.

SINGLING. Thinning seedlings so that two do not touch each other.

SINNI'NGIA. (Named after *W. Sinning*, a German gardener. Nat. ord., *Gesner-worts* [Gesneraceæ]. Linn., 14-Di-dynamia 2-Angiospermia.)

We have retained this genus, the name being in common use; but the species are *Gloxinias*. Stove evergreens. For culture, see *GESNERA*.

S. gutta'ta (spotted). 14. Yellow, red. June. Brazil. 1827.

— *He'lleri* (Heller's). 1. White, green. June. Rio Janeiro. 1827.

— *veluti'na* (velvety). 14. Yellow. June. Brazil. 1827.

— *villo'sa* (shaggy). 14. Yellow, green. June. Brazil. 1827.

SIPHOCAM'PYLOS. (From *siphon*, a tube, and *kampylos*, a curve; shape of the flower. Nat. ord., *Lobeliads* [Lobeliaceæ]. Linn., 5-Pentandria 1-Monogynia.)

Cuttings root readily; those which are herbaceous are best struck from the young shoots, several inches in length, as they rise from the root in spring; *bicolor* and *betulafol'ius* are hardy in sheltered places.

HARDY.

S. betulafol'ius (birch-leaved). 3. Red, yellow. July. Brazil. 1842. Deciduous.

— *bi'color* (two-coloured). 3. Red, yellow. April. Georgia. 1835. Evergreen.

GREENHOUSE EVERGREENS.

- S. coccineus* (scarlet-flowered). 3. Scarlet. July. Brazil.
— duploserratus (double-saw-leaved). 2. Red. Brazil. 1847.
— lantanifolius (lantana-leaved). Rose. July. Organ Mountains. 1841.
— — glaberrimus (rather-smooth). 3. Purplish-red. April. Caraccas. 1847.
— longipedunculatus (long-flower-stalked). 3. Red. January. Organ Mountains. 1841.

STOVE EVERGREENS.

- S. giganteus* (gigantic). Yellow, red. New Granada.
— glandulosus (glanded-calyx). 3. Red. July. Bogota. 1845.
— Guianensis (Guianan). Guiana. 1847.
— Manettiaefolius (Manettia-flowered). 1. Red, yellow. April. New Granada. 1848.
— microstoma (small-mouthed). 3. Scarlet. September. New Granada. 1844.
— Orbignyus (D'Orbigny's). Yellow and scarlet. Valparaiso. 1850.
— — eximius (showy). Dark violet. New Granada. 1850.
— — elegans (elegant). Bright red. New Granada. 1849.
— reticulatus (netted). Violet. New Granada. 1850.
— scandens (climbing). Scarlet. Peru. 1847.
— Surinamensis (Surinam). 2. Orange. April. S. Amer. 1786.

SISSOO WOOD. *Dalbergia Sissoo*.

SISYMBRIUM. (A classical name for some plant. Nat. ord., *Cruciferae* [Cruciferae]. Linn., 15-Tetradynamia.)

Many species, all but one mere weeds. This is propagated by cuttings of young shoots in spring; does best with greenhouse treatment, but requires at least a cold pit in cold winters; common, sandy loam.

S. millefolium (milfoil-leaved). 1½. Yellow. June. Canaries. 1779. Evergreen.

SIPHONIA. (From *siphon*, a tube, or pipe. Nat. ord., *Spurge-worts* [Euphorbiaceae]. Linn., 21-Monæcia 10-Monadelphica.)

The Brazilian, or Bottle India-rubber is the produce of this shrub. Stove evergreen shrub. Cuttings of ripened shoots, dried at the base, inserted in sand, under a large glass, in bottom-heat; sandy, fibry loam, peat, and leaf-mould. Winter temp., 50° to 60°; summer, 60° to 85°.

S. Cahuchu (Cahuchu). 6. Guiana. 1823.

SISYRNCHIUM. (From *sys*, a pig, and *rynchos*, a snout; swine grub out the roots for food. Nat. ord., *Irids* [Iridaceae]. Linn., 13-Polyandria 6-Polygynia.)

Herbaceous perennials. Seeds and offsets in spring; sandy loam and leaf-mould.

HARDY.

- S. anceps* (two-edged). 1. Blue. June. N. Amer. 1693.
— Californicum (Californian). ¾. Yellow. July. California. 1796.
— Cummingii (Cumming's). 1. Cream. July. N. Amer. 1832.
— glaucophyllum (milky-green-leaved). ¾. Blue. August. N. Amer. 1830.

- S. grandiflorum* (large-flowered). ¾. White. May. N. Amer. 1826.
— mucronatum (spine-pointed). ¾. Blue. June. N. Amer. 1812.
— Nuttallii (Nuttall's). 1. Blue. June. N. Amer. 1823.
— striatum (channelled). 2. Yellow. June. Mexico. 1788.
— tenuifolium (slender-leaved). ¾. Yellow. May. S. Amer. 1816.

HALF-HARDY.

- S. Bermudianum* (Bermuda). 1. Blue. June. Bermudas. 1732.
— Chileense (Chilian). Blue. July. Chili. 1826.
— convolutum (encircling). ¾. Yellow. May. S. Amer. 1816.
— graminifolium (grass-leaved). ¾. Yellow. April. Chili. 1825.
— — pulchellum (dwarf). ¾. Yellow. October. Chili.
— hirtellum (slightly-hairy). ¾. White. July. N. Amer. 1830.
— iridifolium (iris-leaved). ¾. Yellow. June. S. Amer. 1822.
— junceum (reed-like). ¾. Lilac. June. Chili. 1832.
— laxum (loose). ¾. Yellow. June. S. Amer. 1818.
— lutescens (yellowish). 2½. Yellowish. June. Chili. 1830.
— luteum (yellow). ¾. Yellow. June. S. Amer. 1823.
— macrocephalum (large-headed). 1½. Yellowish. July.
— maculatum (spotted-petaled). 1. Yellow-spotted. June. Chili. 1830.
— majale (May). Yellow. May. Valparaiso. 1832.
— micranthum (small-flowered). ¾. Yellow. June. S. Amer. 1815.
— odoratissimum (sweetest-scented). White. June. S. Amer. 1823.
— palmifolium (palm-leaved). 1. White. February. Brazil. 1823. Stove.
— pedunculatum (long-flower-stalked). 1. Yellow. September. Chili. 1827.
— plicatum (folded). 2. White. February. W. Ind. 1779. Stove.
— speciosum (showy). 1. Blue. June. Chili. 1836.

SITOLOBIUM. (From *sitos*, wheat, and *lobos*, a lobe; shape of the lobes of the fronds. Nat. ord., *Ferns* [Polypodiaceae]. Linn., 24-Cryptogamia 1-Filices.)

Stove, brown-spored Ferns. See FERNS.

- S. adiantoides* (maiden-hair-like). May. W. Ind. 1834.
— cuneatum (wedge-shaped). May. Isle of Luzon.
— Davalliaefolius (Davallia-like). May. N. Holland. 1833.
— dissectum (dissected). Winter. E. Ind.
— flaccidum (weak). April. Isle of Luzon.
— glutinosum (clammy). April. E. Ind.
— pilosiusculum (slightly-hairy). September. E. Ind.
— punctilobum (dotted-lobed). April. N. Amer. 1822.
— rubiginosum (ruddy). May. Brazil. 1841.
 SI'UM. (From *sin*, the Celtic for water. Nat. ord., *Umbellifers* [Umbelliferaceae]. Linn., 5-Pentandria 2-Digynia.)
 All weeds, except the following. See SKIRRET.
S. sisarum (skirret) 1. White. August. China. 1848.

SK'T'MMIA. (From *Skimmi*, the Japanese name. Nat. ord., *Citronworts* [Aurantaceæ]. Linn., 4-*Tetrandria* 1-*Monogynia*.)

Hardy evergreen shrub. Propagated from cuttings, and cultivated like the hardy evergreen *Daphnes*.

S. Japo'nica (Japanese). 3. White. April. Japan. 1853.

SKINNE'RA. (Named after *Captain Skinner*, a botanist. Nat. ord., *Bindweeds* [Convolvulaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Calystegia*.)

Stove herbaceous. Seeds in a hotbed, in spring; and cuttings of the young shoots in spring, in sandy, light soil, and in a sweet bottom-heat; rich, light fibry loam, and a little peat. Winter temp., 55° to 60°; summer, 60° to 85°.

S. cespitosa (turfy). Yellow. May. E. Ind. 1827.

SKIRRET. (*Si'um sisa'rum*.) Sow at the end of March, or early in April, in drills a quarter of an inch deep, and twelve inches apart. Thin the plants to twelve inches apart. In autumn they will be fit for use like parsnips. *By Offsets.*—Old roots throw off these in the spring, when they may be slipped off, and planted in rows a foot apart each way. *Soil.*—A light, rich loam is best, trenched, with a little manure dug in with the bottom spit. *To save Seed*, let a few of the old roots run up in spring; they ripen their seed in the autumn.

SKULL-CAP. *Scutella'ria*.

SLIMY GRUB. See *SELANDRIA*.

SLIPPERWORT. See *CALCEOLA'RIA*.

SLIPS are young shoots torn off from the parent plant, so that they have a heel of older wood attached to them. (See *CUTTINGS* for culture.) *Slips*, also, is the name applied to the side beds of the kitchen, not immediately in contact with the walls or fences.

SLOE-TREE. *Pru'nus spino'sa*.

SLUGS are of many species, and the smaller are much more injurious to the gardener than those of a larger size, because they are much less discernible, and, their ravages being more gradual, are not at once detected. They are effectually destroyed by either salt or lime; and to secure the contact of these with their bodies, it is best first to water the soil where they harbour with lime-water in the evening when they are coming out to feed, sprinkling the surface at the same time with dry lime, and at the end of a week applying a surface-dressing of salt, at the rate of five bushels per acre. If cabbage-leaves are spread upon

the surface of land infested by slugs, they will resort to their under sides, and thus they may be trapped; but lime and salt are most efficacious. Lime-water may be poured over wall-trees infested with them, and they may be syringed with it as well as with water in which gas liquor has been mixed, about half a pint to a gallon. If lime be sprinkled along the top and at the base of the wall, renewing it weekly, the slugs cannot get to the trees. Fresh brewers' grains, placed in small heaps, are good traps for them; and frequent earth-stirring helps to banish them.

SMEATHMA'NNIA. (Named after *Smeathmann*, an African traveller. Nat. ord., *Passionworts* [Passifloraceæ]. Linn., 13-*Polyandria* 6-*Polygynia*.)

Stove, white-flowered evergreens, from *Sierra Leone*. Cuttings of ripened shoots, or short, stubby side-shoots, in sand, under a bell-glass, and in bottom-heat; sandy, fibry loam, and lumpy peat. Winter temp., 55° to 60°; summer, 60° to 85°.

S. lanigata (smooth-leaved). 6. February. 1823.
— *pubescens* (downy). 10. February.

SMILAC'NA. (Diminutive of *Smilax*, from *smile*, a scraper; referring to the rough stems. Nat. ord., *Lilyworts* [Liliaceæ]. Linn., 6-*Hexandria* 1-*Monogynia*.)

Hardy herbaceous, white-flowered, and from North America, except where otherwise specified. Divisions in spring; common, light soil.

S. bifolia (two-leaved). 4. May. North Europe. 1596.

— *borcalis* (northern). 1. Yellow. May. 1787.

— *Canadensis* (Canadian). 4. June. 1812.

— *ciliata* (hair-fringed). 4. May. 1823.

— *racemosa* (racemed). 1. Pale yellow. May. 1640.

— *ramosa* (branchy). 2. Pale yellow. May. Siberia. 1820.

— *stellata* (starred). 4. May. 1633.

— *trifolia* (three-leaved). 4. June. 1812.

— *umbellata* (umbelbed). 3. May. 1778.

SMI'LAX. (From *smile*, a scraper; rough, prickly stems. Nat. ord., *Sarsaparillas* [Smilacæ]. Linn., 22-*Diœcia* 6-*Hexandria*.)

Sarsaparilla is the produce of many species of *Smilax*. There are many species, but only the following require our notice, which have whitish-green flowers. Suckers from the roots; sandy, rich loam, and a little peat. They are evergreen climbers, seldom flowering. One of the most beautiful is *rubens*, from the red colour of its tendrils. The species from China should have the protection of a cold pit or a wall.

S. Chi'na (China). 6. China. 1759.

— *rubens* (red). 6. Ju'y. N. Amer. 1812.

— *sagittifolia* (arrow-leaved). 14. September. China. 1820.

— *sarsaparilla* (sarsaparilla). 4. July. N. Amer. 1664.

— *Walterii* (Walter's). Virginia.

— *Watsoni* (Watson's). 4. July. N. Amer. 1911.

SNAILS. See SLUGS.

SNAIL FLOWER. *Phaseolus caracalla*.

SNAKE GOURD. *Trichosanthes*.

SNAKE ROOT. *Aristolochia serpentaria*.

SNAKE WOOD. *Brosimum Aubletii*.

SNAPDRAGON. *Antirrhinum* and *Silene antirrhina*.

SNEEZEWORD. *Achillea Ptarmica*.

SNOW is one of the gardener's best shelters, and should never be removed from his out-door crops. It prevents heat from radiating from them; protects them from freezing, drying blasts, and, being a bad conductor of heat, thus prevents its escape from them. We have never known the surface of the earth, below a covering of snow, colder than 32°, even when the temperature of the air above has been 28°.

SNOWBALL-TREE. *Viburnum opulus*.

SNOWBERRY. *Chiococca*.

SNOWDROP. *Anemone sylvestris* and *Galanthus*.

SNOWDROP-TREE. *Halesia*.

SNOWFLAKE. *Leucjum*.

SOAP-BOILER'S ASHES. See ASHES.

SOAPWORT. *Saponaria*.

SOBRALIA. (Named after F. M. Sobral, a Spanish botanist. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-Gynandria 1-Monandria.)

Stove orchids, grown in pots. See ORCHIDS.

S. chlorantha (yellow-flowered). Yellow. June. Brazil.

— *deco-ra* (comely). Various. July. Guatemala. 1836.

— *dichotoma* (two-ranked). Rose, purple. March. Peru.

— *lilistrum* (lily-flowered). White. July. Guiana. 1840.

— *macrantha* (large-flowered). 6. Crimson. September. Guatemala. 1842.

— — *splendens* (splendid). 3. Crimson. September. Guatemala. 1846.

— *sessilis* (stalkless). Pink. December. Peru. 1840.

— *violacea* (violet). Violet, white. July. Merida.

SOIL. However varying in the proportions, yet every soil is composed of silica, alumina, lime, magnesia, oxide of iron, salts, and animal and vegetable remains. A fertile soil is one which contains such a proportion of decomposing matter and of moisture as to keep the crop growing upon it always supplied with food in a state fit for the roots to absorb, yet not so superabundantly as to render the plants too luxuriant, if the object in view is the production of seed; but for the production of those plants whose foliage is the part in request, as spinach, or of edible bulbous roots, as onions,

which have a small expanse of leaves, so as to be almost entirely dependent upon the soil for nourishment, there can scarcely be an excess of decomposed matter presented to their roots.

A subsoil of gravel, mixed with clay, is the best, if not abounding in oxide of iron; for clay alone retains the moisture on the arable surface in too great an excess; and sand or chalk, on the contrary, carries it away too rapidly. It is, however, evident, that to insure these desiderata in any soil, at all seasons, is impossible; and it is manifest that a soil that would do so in one climate would fail in another, if the mean annual temperature of them should differ, as well as the amount in inches of rain which falls during the same period. Thus, in the western parts of England, more than twice as much rain occurs as in the most eastern counties, or in the proportion of forty-two to nineteen. A soil in the east of England, for any given crop, therefore, may be richer and more tenacious than the soil required for it on the western coast.

Alumina (clay) imparts tenacity to a soil when applied; silica (sand) diminishes that power; whilst chalk and lime have an intermediate effect. They render heavy soils more friable, light soils more retentive. These simple facts are important; two neighbouring gardens, by an interchange of soils, being often rendered fertile, which before were in the extremes of tenacity and porosity.

In affording warmth to plants, the earth is of considerable importance, and the power of accumulating and retaining heat varies as much in soils as the proportions of their constituents. Sir Humphry Davy found that a rich black mould, containing one-fourth of vegetable matter, had its temperature increased, in an hour, from 65° to 88° by exposure to the sunshine, whilst a chalk soil was heated only to 69° under similar circumstances. But the first, when removed into the shade, cooled in half an hour 15°; whereas the latter lost only 4°. This explains why the crops on light-coloured, tenacious soils are in general so much more backward in spring, but are retained longer in verdure, during autumn, than those on black, light soils, the latter attain a genial warmth the more readily, but part from it with equal speed.

The quantity of soluble matter obtainable from a soil at any one time is very small, seldom exceeding a one-thousandth part of its weight; and even pure vegetable mould, the *débris* of entirely putrefied plants, was found by Saussure to yield only one-eleventh of soluble matter. This mould was too rich for horticultural purposes, peas and beans grown in it being too luxuriant; and they were more productive in a soil containing only one-twentieth of organic constituents dissolvable by water. Small in amount, however, as are the soluble constituents of the most fertile soils, they are necessary for the vigorous vegetation of plants; for when a soil is deprived of those constituents by frequent washings with boiling water, it is much less fertile than before. Liebig and others have most illogically concluded, from the smallness of the soluble extract contained in a soil, that it is of small importance, forgetting that as fast as it is taken by the roots of the crop, it is generated again by the decomposition of the animal and vegetable remains. This is one reason why fallowing is beneficial. Easily decomposing matters have been exhausted by successive crops; and by a year's rest, and exposure to the putrefactive agency of the air, the more stubborn and more slowly decomposing matters have time to decay and accumulate in the soil.

SOILING-UP. See **BASINING-UP** and **EARTHING-UP.**

SOJA. (From *soja*, the name of a sauce made from the seeds in Japan. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 17-Diadelphia 4-Decandria. Allied to Dolichos.)

Climbing annual. Seeds in May, in the open border, or in a slight hotbed in April, and transplanted.

S. hispida (bristly). 3. Violet. July. E. Ind. 1790.

SOLANDBRA. (Named after Dr. Solander, a Swedish botanist. Nat. ord., *Nightshades* [Solanaceæ]. Linn., 5-Pentandria 1-Monogynia.)

Stove evergreen shrubs. Cuttings from flowering shoots in open, sandy loam, and in a brisk bottom-heat; sandy loam, a little fibry peat, and dried nodules of old cow-dung. Winter temp., 50° to 60°, and almost dry; summer, 60° to 90°, and plenty of moisture when growing.

S. grandiflora (large-flowered). 15. Pale yellow. May. Jamaica. 1781. Climber.

— *guttata* (spotted-flowered). 12. Pale yellow. Mexico. 1830.

— *laevis* (smooth-leaved). 2. White. October.

— *nitida* (shining). 20. Yellowish-white. E. Ind. 1820.

S. oppositifolia (opposite-leaved). 10. White. Ceylon. 1820.

— *viridiflora* (green-flowered). 3. Green. S. Amer. 1815.

SOLANUM. Nightshade. (From *solor*, to comfort; soothing narcotic effect. Nat. ord., *Nightshades* [Solanaceæ] Linn., 5-Pentandria 1-Monogynia.)

All freely by seeds. Annuals, hardy, seeds in the open air; tender, in a hotbed, and transplanted in June; herbaceous, by similar means, and division; shrubby, by similar modes, and cuttings under a bell-glass, and requiring the protection of a house and temperature, in proportion to the place of which they are natives. See **POTATO.**

HARDY ANNUALS.

S. æthiopicum (Ethiopian). 1½. White. August. Ethiopia. 1597.

— *Fontanesianum* (Fontaine's). Yellow. August. Brazil. 1813.

— *heterandrum* (various-stamened). Yellow. July. Missouri. 1837.

— *heterodoxum* (heterodox). Blue. July. Mexico. 1820.

— *nigrum* (black-berried). 3. White. July. Britain.

— — *melanocerasum* (black cherry). 2. White. July. Virginia. 1820.

— *obtusifolium* (blunt-leaved). August. 1831.

— *rostratum* (beaked). Yellow. July. Mexico. 1823.

HARDY HERBACEOUS.

S. cardiophyllum (heart-leaved). 1. Cream. June. Mexico. 1846. Tuberous.

— *crispum* (curled). 18. Blue. June. Chili. 1824. Evergreen.

— *demissum* (humble). 1½. June. Mexico. 1846. Tuberous.

— *etuberosum* (tuberless). 2. Purple. June. Chili. 1833.

— *tuberosum* (tuberous. *Potato*). 2. White. July. Peru. 1597.

GREENHOUSE ANNUALS.

S. fuscatum (dusky). 1½. Scarlet. June. S. Amer. 1817.

— *melongena* (egg-plant). Violet. June. E. Ind. 1597.

— — *ovigerum* (egg-bearing). 2. Blue. June. Africa. 1597.

— — *fructu-albo* (white-fruited). 2. Blue. June. Tropics. 1597.

— — *fructu-luteo* (yellow-fruited). 2. Blue. June. Tropics. 1597.

— — *fructu-rubro* (red-fruited). 2. Blue. June. Tropics. 1597.

— — *fructu-violeta* (violet-fruited). 2. Blue. June. Tropics. 1597.

— — *esculentum* (eatable). Blue. August. E. Ind. 1815.

— *pu'gens* (stinging). Blue, violet. June. N. Holland. 1823.

— *racemiflorum* (cluster-flowered). 2. White. rose. August. S. Amer. 1818. Biennial.

GREENHOUSE HERBACEOUS.

S. campanulatum (bell-flowered). 1. Blue. June. N. S. Wales. 1836.

— *jasminoides* (jasmine-like). 6. Purple. August. S. Amer. 1838. Climber.

— *Tweedia-num* (Tweedia's). 1½. White, purple. September. Buenos Ayres. 1833.

STOVE HERBACEOUS.

S. calceolum (large-calyxed). 1. Blue. June. Mexico. 1820.

S. monanthum (one-flowered). 2. Blue. June. New Spain. 1818.

STOVE EVERGREENS.

- S. aggregatum* (clustered). 6. Purple. June. Cape of Good Hope. 1821.
— Amazo'nium (Amazon). Blue. July. Mexico. 1800.
— angulatum (angular). 4. White. July. Lima. 1825.
— arbo'reum (tree). 40. White. June. Cumana. 1819.
— auriculatum (ear-leaved). 4. Violet. Madagascar. 1773.
— beta'ceum (beet-leaved). 4. Pink. June. S. Amer. 1803.
— Bonarie'nse (Buenos Ayres). 10. White. July. Buenos Ayres. 1727.
— Brasilia'num (Brazilian). 2. June. Brazil. 1820.
— coria'ceum (leathery). 4. Purple, white. July. Mexico. 1820.
— corymbo'sum (corymbed). 2. Violet. July. Peru. 1786.
— cla'tum (tall). 6. White. June. 1820.
— fra'grans (fragrant). 14. Green. June. Brazil. 1835.
— glutino'sum (clammy). 4. Blue. June. 1810.
— Havane'nse (Havannah). 5. Blue. July. W. Ind. 1793.
— hi'r'tum (shaggy). 2. White. June. Trinidad. 1821.
— hy'bridum (hybrid). 2. Purple, blue. June. Guinea. 1815.
— i'gneum (fiery-spined). 3. White. July. S. Amer. 1714.
— inco'dum (hoary). 2. Purple. July. Ceylon. 1823.
— Indicum (Indian). 6. Purple. July. India. 1732.
— Jamaice'nse (Jamaica). 4. White. June. Jamaica. 1818.
— lancea'folium (lance-leaved). 10. White. July. W. Ind. 1816.
— lanceola'tum (spear-head-leaved). 7. Pale blue. June. Mexico. 1800.
— lauri'folium (laurel-leaved). 8. June. S. Amer. 1820.
— longifo'rum (long-flowered). 3. Violet. July. Cayenne. 1823.
— macra'nthum (large-flowered). 12. Pale lilac. Brazil.
— melano'xylum (black-wooded). 3. White. June. 1821.
— Mexica'num (Mexican). 3. Violet. June. Mexico. 1825.
— mo'lle (soft). 5. Purple. July. Trinidad. 1817.
— murica'tum (prickly). 3. Violet. July. Peru. 1785.
— myriaca'nthum (many-spined). 3. Purple. July. 1822.
— negle'ctum (neglected). 4. Violet. June. W. Ind. 1824.
— pyra'cantha (fire-thorn). 4. Purple. August. Madagascar. 1789.
— in'er'mis (unarmed). 4. Purple. September. Madagascar. 1789.
— Seaforthia'num (Seaforth's). 20. Pink. August. Barbadoes. 1804. Climber.
— subine'rme (half-unarmed). 7. Blue. July. W. Ind. 1752.
— te'ctum (covered). 3. Yellow. June. Mexico. 1823.
— togo're (grim). 2. Blue. Guiana. 1822.
— tomento'sum (woolly). 2. Blue. June. Cape of Good Hope. 1662.
— trique'trum (three-cornered). 2. White. June. New Spain. 1820.
— tri'ste (sad). 6. Violet. June. W. Ind. 1820.
— umbro'sum (shady). 2. White. June. Trinidad. 1825.
— verbasci'folium (mullein-leaved). 7. White. June. W. Ind. 1749.

S. viola'ceum (violet). 4. Blue. June. E. Ind. 1817.
— vici'bile (twining). 8. Blue. June. W. Ind. 1823.

GREENHOUSE EVERGREENS.

- S. aculeatissimum* (prickliest). 3. Pale blue. May. S. Amer. 1816.
— Balbi'sii (Balbis's). 4. Blue. July. S. Amer. 1816.
— bipinna'tum (two-leafleted). Blue. June. Buenos Ayres. 1840.
— Brownii (Brown's). 3. Violet. July. N. S. Wales. 1820.
— coa'gulans (curdling). 3. Purple. July. Arabia. 1802.
— elaeagnifolium (oleaster-leaved). 6. Blue. June. Chili. 1823.
— flave'scens (yellowish). 3. Blue. June. Trinidad. 1826.
— fu'gax (fleeing). 5. White. June. Caraccas. 1816.
— gigante'um (giant). 15. Violet. June. Cape of Good Hope. 1792.
— lacinia'tum (cut-leaved). 3. Violet. July. N. Holland. 1772.
— herba'ceum (herbaceous). 3. Violet. July. Van Diemen's Land. 1772.
— ligustri'num (privet-leaved). 5. Deep lilac. June. Chili. 1831.
— macra'ntherum (large-anthered). 3. Purple. August. Mexico. 1838.
— macrocar'pum (large-fruited). 1. Blue. August. Peru. 1759.
— margina'tum (white-edged). 4. Purple. July. Africa. 1775.
— Milleri (Miller's). 3. White. July. Cape of Good Hope. 1762.
— myrti'folium (myrtle-leaved). Blue.
— pseudo-ca'psicum (bastard-capsicum). 4. White. July. Madeira. 1596.
— publi'gerum (downy). White. June. Mexico. 1818.
— ra'dicans (rooting). 3. Purple. Peru. 1771.
— rig'e'scens (stiff). 14. Violet. June. Cape of Good Hope. 1823.
— Ro'ssii (Ross's). Pale blue. Mexico.
— runcina'tum (runcinate-leaved). 3. Violet. September. Chili. 1831.
— sa'nctum (holy). 3. Purple. June. Egypt. 1818.
— sapona'ceum (soapy). 4. White. July. Chili. 1825.
— sinua'tum (scalloped-leaved). 24. Bluish. July. 1815.
— Sodo'neum (Sodom). 3. Violet. June. Africa. 1688.
— stella'tum (starred). 6. Blue. June. 1805.
— stell'i'gerum (star-bearing). 3. Pale purple. July. N. Holland. 1823.
— stramonio'lium (stramonium-leaved). 6. Purple. July. E. Ind. 1778.
— vesperti'lio (bat). Blue. June. Canaries. 1779.
— vesti'tum (clothed). 6. White. October. Mexico.
SOLDANE'LLA. (A diminutive of *solidus*, a shilling; shape of the leaves. Nat. ord., *Primeworts* [Primulacæ]. Linn., 5-Pentandria 1-Monogynia. Allied to the American Cowslip.)
 Half-hardy herbaceous perennials, purple-flowered, and blooming in April, except where otherwise mentioned. Seeds and division of the plant in spring; peat and loam; front of a sheltered peat-border, or treated as alpine plants, protected from severe frosts and heavy rains in winter; *mi'nima* and *pust'illa*, at least, require this protection.
S. affinis (related). 4. Switzerland.
— alpi'na (alpine). 4. Switzerland. 1656.
— Clu'sii (Clusius's). 4. Germany.
— crena'ta (scalloped). 4.
— mi'nima (least). 4. Blue. Switzerland. 1823.

- S. minima alba* (white-flowered). †. Bluish. May. Switzerland.
 — *montana* (mountain). †. Bohemia. 1816.
 — *pusilla* (weak). †. Blue. Switzerland. 1820.

SOLDIER-WOOD. *T'nga purpu'rea*.

SO'LEA. See VI'OLA.

SOLENTID'UM. (From *solen*, a tube. Nat. ord., *Orchids* [*Orchidaceæ*]. Linn., 20-Gynandria 1-Monandria. Allied to *Brassia*.)

Stove orchid, grown on a block. See ORCHIDS.
S. racemosum (racemed). Yellow, red. November. Pamplona.

SOLIDA'GO. Golden Rod. (From *solidare*, to unite; supposed healing properties. Nat. ord., *Composites* [*Asteraceæ*]. Linn., 19-Syngenesia 2-Superflua.)

Hardy herbaceous perennials, all yellow-flowered, and all from North America, where not otherwise noticed. Divisions of the plant in spring; common soil. Showy at the back of herbaceous borders, or the back rows of herbaceous plants in the front of shrubberies.

- S. alpestris* (rock). 1‡. August. Hungary. 1816.
 — *ambigua* (doubtful). 2. July. 1759.
 — *angustifolia* (narrow-leaved). 3. September.
 — *anisata* (scented). 3. September. 1815.
 — *arenaria* (sand). 1‡. July. South Europe. 1816.
 — *aspera* (rough-leaved). 3. September. 1732.
 — *caesia* (grey). 2. September. 1732.
 — *Canadensis* (Canadian). 3. August. 1648.
 — *ciliata* (hair-fringed). 3. August. 1811.
 — *decurrens* (decurent). 1. September. China. 1823.

- *elata* (tall. Hairy). 1. September. 1811.
 — *elliptica* (oval-leaved). 3. August. 1759.
 — *erecta* (upright). 3. September.
 — *fragrans* (fragrant). 3. August.
 — *gigantea* (gigantic). 6. August. 1758.
 — *glomerata* (crowded). 3. September. 1820.
 — *graminifolia* (grass-leaved). 3. September. 1758.
 — *humilis* (humble). 1. July. 1811.
 — *lavigata* (smooth-leaved). 3. September. 1699.
 — *lateralifolia* (lateral-flowered). 3. August. 1758.
 — *latifolia* (broad-leaved). 1‡. September. 1725.
 — *macrophylla* (large-leaved). 3. September.
 — *Mexicana* (Mexican). 3. September. 1683.
 — *minuta* (minute). †. July. Pyrenees. 1772.
 — *multiradiata* (many-rayed). †. July. Labrador. 1776.

- *nemorialis* (grove). 1‡. September. 1769.
 — *Nepalensis* (Nepaul). 1. July. Nepaul.
 — *Noveboracensis* (New York). 3. September.
 — *nudiflora* (naked-flowered). 1. July. South Europe. 1820.

- *odorata* (sweet-smelling). 3. July. 1699.
 — *patula* (spreading). 2. September. 1805.
 — *paucifloscula* (few-floreted). 2. September. 1811.

- *polifolia* (polium-leaved). 3. September. 1826.
 — *procera* (tall). 6. September. 1758.
 — *puberula* (slightly-downy). 2. September.
 — *puberulenta* (powdered). 3. August.
 — *pyramidalis* (pyramidal). 2. September. 1790.
 — *recurvata* (curled-back). 2. October.
 — *reflexa* (bent-back-leaved). 3. August. 1758.
 — *rigida* (stiff-leaved). 3. September. 1710.
 — *scabra* (scurfy). 3. August. 1811.
 — *sempervirens* (evergreen). 5. September. 1699.
 — *serotina* (late-flowering). 4. July. 1758.
 — *simplex* (simple-stemmed). 1. 1826.
 — *speciosa* (showy). 4. October. 1817.

- S. squarrosa* (spreading). 3. September.
 — *stricta* (upright). 3. September. 1758.
 — *tenuifolia* (fine-leaved). 2. October. 1758.
 — *villosa* (shaggy). 3. August. 1732.
 — *viminalis* (twiggy). 3. September. 1759.
 — *virgata* (rod-like). 2. September. 1800.

SO'LLYA. (Named after R. H. Solly, a naturalist. Nat. ord., *Pittosporads* [*Pittosporaceæ*]. Linn., 5-Pentandria 1-Monogynia.)

Greenhouse, blue-flowered, evergreen climbers, from Australia. Seeds in a slight hotbed, in April; cuttings then of young shoots a little firm at the base, in sand, under a bell-glass, and placed in a cold pit, when the night temperature does not exceed from 45° to 50°; loam and peat. Winter temp., 40° to 45°. Most of them would succeed against a conservative wall.

- S. angustifolia* (narrow-leaved). 8. July. 1823.
 — *heterophylla* (various-leaved). 6. July. 1830.
 — *linearis* (narrow-leaved). 5.
 — *salicifolia* (willow-leaved).

SOLOMON'S SEAL. *Polygonatum*.

SONERI'LA. (From *Soneri-ila*, the Javanese name. Nat. ord., *Melastomads* [*Melastomaceæ*]. Linn., 8-Octandria 1-Monogynia. Alliance near *Bertolonia*.)

Stove annual. Seed in a gentle hotbed, in March, potted off, and bloomed in greenhouse or stove; sandy peat.

- S. stricta* (upright). ‡. Rose. May. Java. 1848.

SONNERA'TIA. (Named after M. Sonnerat, a botanical traveller. Nat. ord., *Myrtleblooms* [*Myrtaceæ*]. Linn., 12-Icosandria 1-Monogynia. Allied to the *Pomegranate*.)

Stove evergreen shrubs, from the East Indies. Cuttings of half-ripened shoots, taken off with a heel, in sand, under a bell-glass, and placed in a mild hotbed in May; fibry loam, turfy peat, a little sand, and dried old cow-dung. Winter temp., 45° to 55°; summer, 60° to 85°.

- S. acida* (sour). Red. June. 1822.
 — *alba* (white). White. May. 1824.
 — *apetala* (petal-less). White. June. 1826.

SOOT is the volatilized unconsumed portion of common coal. It is thus constituted:—Charcoal, 371; salts of ammonia, 426; salts of potash and soda, 24; oxide of iron, 50; silica, 65; alumina, 31; sulphate of lime, 31; carbonate of magnesia, 2. It is an excellent manure for peas, onions, carrots, and probably all garden crops. An excellent liquid-manure is soot mixed with rain-water, in the proportion of one table-spoonful of soot to a quart of water, for plants in pots; but for asparagus, peas, &c., six quarts of soot to a hogshhead of water. It must never be applied to plants in a state of rest. It succeeds admirably with bulbs. See LIQUID-MANURES.

SOPHO'RA. (From the Arabic name, *Sophora*, of a leguminous tree. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 10-*Decandria* 1-*Monogynia*.)

Hardy herbaceous kinds by divisions in spring; stove and greenhouse species, by cuttings of half-ripened shoots under a bell-glass, in sand, and grown in peat and loam. The hardy kinds, such as *Japo'nica* and its varieties, are very ornamental trees on a lawn, but should be grown in poor soil north of London, that the annual growth may be well ripened; propagated by imported seeds, by cuttings of the roots, and layers; its varieties by grafting. *Pendula* is extremely graceful and fast growing.

HARDY HERBACEOUS.

- S. alopecuroides* (fox-tail-grass-like). 4. Yellow. July. Levant.
- *flavescens* (yellowish). 2. Yellow. June. Siberia. 1785.
- *galeoides* (galega-like). 2. Yellow. June. Siberia. 1817.

HARDY DECIDUOUS TREES.

- S. Chinensis* (Chinese). 30. White. August. China. 1763.
- *Japo'nica* (Japanese). 40. White. August. Japan. 1763.
- — *foliis-variegatis* (variegated-leaved). 14. White. August. Japan.
- — *pendula* (drooping). 12. White. August. Japan.

GREENHOUSE EVERGREENS.

- S. macrocarpa* (large-fruited). 6. Yellow. April. Chili. 1822.
- *velutina* (velvety). 6. Pink. June. Nepal.

STOVE EVERGREENS.

- S. glauca* (milky-green). 7. Purple. E. Ind. 1818.
- *tomentosa* (downy). 5. Yellow. Brazil.

SOPHRON'TIS. (From *sophron*, modest; referring to the pretty little flowers. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-*Gynandria* 1-*Monandria*. Allied to *Dinema*.)

Stove orchids, grown on blocks. See ORCHIDS.

- S. cernua* (drooping). 4. Red. June. Rio Janeiro. 1827.
- *grandiflora* (large-flowered). 4. Red. Organ Mountains. 1837.
- *ptero-carpa* (wing-fruited). Red. Guatemala. 1842.
- *violacea* (violet-coloured). Violet. February. Mexico. 1838.

SOROCE'PHALUS. (From *soros*, a heap, and *kephale*, a head; clustered head of flowers. Nat. ord., *Proteads* [Proteaceæ]. Linn., 4-*Tetrandria* 1-*Monogynia*.)

Greenhouse, purple-flowered evergreens, from the Cape of Good Hope. Cuttings of ripened young shoots in sand, under a hand-light, either in spring or autumn; may be hastened, after the base has swelled, with a little bottom-heat; sandy, fibry loam, and a little peat and broken free-stone, carefully drained. Winter temp., 35° to 45°.

- S. diversifolia* (various-leaved). 4. June. 1803.
- *imberbis* (beardless). 3. July. 1806.
- *imbricata* (imbricated). 3. June. 1794.
- *lana'ta* (woolly). 2. August. 1790.
- *setacea* (bristly). 2. July. 1823.

S. spatuloides (spatalla-like). 3. July. 1803.

— *tenuifolia* (slender-leaved). 3. July. 1802.

SORRELS. These are *Oxalis acetosa* Lla, Wood Sorrel; *Rumex acetosa*, Garden Sorrel; *R. scutellatus*, French or Roman Sorrel. They thrive best in any light, rich garden-soil.

The *Rumexes* are propagated by seed, and all of them by parting the roots, both which modes may be practised from the middle of February until the same period in May, and by parting the roots in September and October. Sow in drills, six or eight inches apart, and a quarter-inch in depth. When two or three inches high, the seedlings should be thinned to three or four inches apart. In September or October, or in the March and April of the succeeding year, they may be removed into their final stations, in rows twelve inches apart each way, or, if the French, eighteen inches.

When divisions of the root are employed, they must be set at once where they are to remain, at the final distances above mentioned. In summer, the stalks must be cut down, to encourage the production of leaves. In autumn and spring the surface of the ground should be gently stirred, and a little manure turned in.

To obtain Seed.—Some plants must not be gathered from, but be allowed to run up unchecked. They flower in the course of June, July, and August, perfecting their seed in autumn. Wood Sorrel does not produce seed.

SORREL-TREE. *Andromeda arborescens*.

SOULA'NGIA. (Named after *Soulange Bodin*, a French nurseryman. Nat. ord., *Rhamnads* [Rhamnaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Phyllica*.)

Greenhouse evergreen shrubs, from the Cape of Good Hope. Cuttings of the points of shoots in sand, under a bell-glass, in April or May; sandy, fibry peat, and a few bits of charcoal, to keep it open. Winter temp., 35° to 45°. Should be tried against a wall, as, in the open air, in dry places and mild situations, *Phylla ericoides* stands the winter uninjured. The *Soulangeas* were once united with the *Phyllicas*.

S. cordata (heart-leaved). Purple, yellow. May. 1789.

- *dioica* (diœious). 3. July. 1817.
- *myrtifolia* (myrtle-leaved). 3. Dark yellow. 1816.
- *rubra* (red). 3. Red. December. 1827.
- *thymifolia* (thyme-leaved). 3. White. June. 1824.

SOWERBE'A. (Named after *Mr. Sowerby*, an eminent botanical artist. Nat. ord., *Lilyworts* [Liliaceæ]. Linn., 6-*Hexandria* 1-*Monogynia*. Allied to *Anthericum*.)

Half-hardy, pink-flowered, herbaceous peren-

nials, from New South Wales. Divisions of the plant in spring; loam and sandy peat, or old leaf-mould. Require the protection of a cold pit in winter, and to be kept dryish.

S. ju'ncea (rush-leaved). 1. May. 1792.

— *Jarvisfo'ra* (loose-flowered). 1. June. 1839.

SOUR is a term applied to wet lands producing acid weeds, such as Sorrel; but it is also appropriate because such lands contain Gallic and other acid compounds, unfriendly to cultivated plants.

SOUR-SOP. *Ano'na murica'ta*.

SOUTHERNWOOD. *Artemi'sia abro'tanum*.

SOUTH SEA TEA. *Plex vomito'ria*.

SOWING. (See GERMINATION.) In addition, a few practical directions may be given. Let all sowing be done in drills. For small seeds, such as lettuce, cabbage, &c., the drills may be sunk by pressing the handle of the hoe into freshly-dug soil; but for larger seeds, as parsnips, beet, and onions, the drills must be struck with the hoe. Almost all sowing should be performed in dry weather, more particularly all early sowing in winter and spring; but in hot weather, in summer and autumn, it may often be eligible to take advantage of sowing immediately after a shower of moderate rain.

The drills being at some distance from one another, not only admit the sun, air, and rain more effectually to the plants, and give them a greater scope than such as are sown broadcast, but admit more readily the hoe between the drills to cut down weeds and loosen the soil.

The general method of forming drills for the reception of seeds is with a common drawing-hoe, sometimes with a large hoe, and sometimes a middling or small hoe, according to the size of the drill required, and the size and nature of the seeds; drawing the drill sometimes with the corner of the hoe, especially for larger seeds, and sometimes with the edge of the hoe flatwise, or horizontally. Large seeds, such as peas, kidney beans, many of the nut kinds, and other large seeds, both of trees, shrubs, and herbaceous plants, require a deep angular drill, drawn with the corner of the hoe, turning the face or edge close to the line, and drawing the drill along with an angular bottom evenly the depth required, the earth remaining close along the side of the drill, ready for turning in again over the seeds; but where flat or shallow drills are required for smaller seeds, it may, in many cases, be more eligible to

draw the drill with the hoe flatwise, holding the edge in a horizontal position.

Bedding-in Sowing.—In this method, the ground being dug and formed in four or five feet wide beds, with alleys a spade width or more between bed and bed, and the earth being drawn off the top of the bed with a rake or spade, half an inch or an inch deep into the alleys, the seed is then sown all over the surface of the bed, which being done, the earth in the alleys is immediately drawn or cast over the bed, again covering the seeds the same depth, and the surface is raked smooth.

The method of bedding-in sowing by sifting is sometimes practised for very small or light seeds of a more delicate nature, that require a very light covering of earth when sown. In order to bury them as shallow as possible, cover them in by sifting fine earth over them out of a wire sieve.

SOY. See So'JA.

SPADE. This most important of the gardener's tools varies in its form and size. *The Common Digging Spade* is of the largest size, being generally from fourteen to sixteen inches long in the plate, and nine or ten broad, narrowing half an inch to the bottom. *The Middling Spade* is about a foot long in the plate, and seven or eight inches broad, and is useful in digging any narrow compartments and between rows of small plants; also in flower-beds and borders, and in stirring and fresh earthing the surface of beds occasionally between close-placed plants of long standing; planting and transplanting many sorts, both in the ground and in the pots.

The Small Spade.—Size ten or twelve inches long in the plate, and five or six wide. It is convenient in pointing-up or slight digging, and fresh earthing the surface between close rows of small plants, in beds and borders, &c., where neither of the two former spades can be readily introduced; likewise in planting and potting many sorts of small plants, taking up small roots, and for other light purposes. Proper garden spades have the plate wholly of iron, not above a quarter of an inch thick upwards, growing gradually thinner from the middle downward, the tree or handle being generally of ash, about two feet and a half long and an inch and a half thick, with a firm, open handle at top, formed out of the solid wood, just big enough to admit

of taking ready hold, one hand at top and the other below, and with an iron rivet through it to prevent it splitting. *Semicircular* or *Scooped Spade* has the plate made semicircular, like a garden trowel, and is very useful in taking up plants with balls of earth, to preserve them more firmly about the roots. Foster, of Stourbridge, and Lyddon, of Birmingham, make very improved spades, wearing with a good edge throughout.

SPADO-STYLES. (Derivation not explained. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 10-*Decandria* 1-*Monogynia*. Allied to *Pultenæa*.)

Greenhouse evergreen shrub. For culture, see *PULTENÆA*.

S. Sieberi (Sieber's). 2. Yellow. May. N. S. Wales. 1824.

SPANISH BROOM. *Spartium junceum*.

SPANISH GARLIC. See *ROCAMBOLE*.

SPANISH NUT. *Moræa sisyrinchium*.

SPANISH VIPER'S GRASS. *Scorzone'ra*.

SPARAXIS. (From *sparasso*, to tear; lacerated spathes. Nat. ord., *Irids* [Iridaceæ]. Linn., 3-*Triandria* 1-*Monogynia*. Allied to *Ixia*.)

Pretty little bulbs, from the Cape of Good Hope. For culture, see *I'XIA*.

S. anemoniflora (anemone-flowered). 3. White. June. 1825.

— *bicolor* (two-coloured). 1. Blue, yellow. March. 1786.

— *blanda* (pleasing). Pink. May. 1811.

— *bulbifera* (bulb-bearing). 3. Violet. May. 1758.

— *fragrans* (sweet-scented). 3. Yellow. June. 1825.

— *grandiflora* (large-flowered). 3. Purple. April. 1758.

— — *lilago* (lily-flowered). 3. White. April. 1758.

— — *striata* (streaked). 1. Variegated. April. 1759.

— *lineata* (pink-lined). 1. White, pink. April. 1811.

— *pendula* (drooping). 1. Dark pink. June. 1825.

— *stellaris* (starry-flowered). 1. Purple. June. 1836.

— *tricolor* (three-coloured). 1. Orange. May. 1789.

— — *roseo-alba* (red and white). 1. Pink. April. 1811.

— — *sanguineo-purpurea* (bloody-purple). 1. Red. April. 1811.

— *violaceo-purpurea* (violet-purple). Violet, purple. April. 1811.

— *versicolor* (parti-coloured). 1. Purple, yellow. September. 1825.

— *Wattii* (Watt's). Violet, lemon-streaked. August.

SPARMA'NNIA. (Named after *A. Sparmann*, a Swedish botanist. Nat. ord., *Lindenblosses* [Tiliaceæ]. Linn., 13-*Polyandria* 1-*Monogynia*.)

A fine old greenhouse evergreen shrub. Cuttings of young shoots in April; loam and a little peat. Winter temp. 38° to 45°.

S. Africa'na (African). 10. White. May. Cape of Good Hope. 1790.

SPARTIUM. Spanish Broom. (From *sparton*, cordage; alluding to the flexible shoots. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 16-*Monadelphia* 6-*Decandria*. Allied to *Genista*.)

Hardy herbaceous, yellow-flowered shrubs. Generally by seeds, but cuttings will strike freely in summer under a hand-light; and this is the best mode for securing a particular variety. They should be planted out young, or be frequently moved, as they make long, naked stems; common, light soil.

S. acutifolium (sharp-leaved). 6. August. Turkey. 1836.

— *junceum* (rush-leaved). 6. August. South Europe. 1548.

— — *florople'no* (double-flowered). 6. August. South Europe. 1548.

— — *odoratissimum* (sweetest-scented). 4. July. Persia. 1834.

SPARTOTHA'MNUS. (From *sparton*, cordage, and *thamnos*, a shrub; its flexible shoots. Nat. ord., *Myoporads* [Myoporaceæ]. Linn., 14-*Didynamia* 2-*Angiospermia*.)

Greenhouse evergreen shrub. Cuttings of young shoots under a bell-glass, in sandy soil; sandy, fibry peat, and lumpy loam. Winter temp., 38° to 45°.

S. junceus (rushy). 3. White. August. Australia. 1819.

SPATALA'NTHUS. (From *spatalos*, delicate, and *anthos*, a flower. Nat. ord., *Irids* [Iridaceæ]. Linn., 16-*Monadelphia* 1-*Triandria*. Allied to *Trichonema*.)

A very rare and delicate Cape bulb, requiring one-half sand and one-half good, turfy peat, in a well-drained pot, after the manner of *Ixias*.

S. speciosus (showy). 1. Cape of Good Hope. 1825.

SPATA'LLA. (From *spatall*, wantonness; application not obvious. Nat. ord., *Proteads* [Proteaceæ]. Linn., 4-*Tetrandria* 1-*Monogynia*.)

Greenhouse, purple-flowered evergreens, from the Cape of Good Hope. Cuttings of ripe young shoots in sand, under a bell-glass, and kept cool; sandy, fibry loam, with pieces of charcoal and freestone; drainage and watering very particularly attended to. Winter temp., 38° to 45°. Pots defended from sun in summer.

S. bracteata (bracted). 3. June. 1806.

— *brevifolia* (short-leaved). 1. July. 1823.

— *caudata* (tailed). 2. June. 1812.

— *incurva* (curled-in-leaved). 2. May. 1789.

— *molles* (soft). 2. June. 1826.

— *ni'væa* (white). 2. June. 1806.

— *pedunculata* (long-flower-stalked). April. 1822.

— *proli'fera* (proliferous). 1. July. 1800.

— *pyramida'lis* (pyramidal). June. 1821.

— *ramulo'sa* (pygmy-branched). 3. August. 1787.

— *Thunbe'rgii* (Thunberg's). 3. May. 1806.

SPATHE'LIA. (From *spathe*, a sheath, or spathe, as in the Palm-tree; resem-

blance. Nat. ord., *Xanthoxyls* [*Xanthoxylacæ*]. Linn., 5-*Pentandria* 3-*Trigynia*. Allied to *Ailanthus*.)

Stove evergreen tree. Cuttings of ripened shoots in sand, under a glass, in heat; loam and peat. Winter temp., 50° to 60°; summer, 60° to 85°.

S. simplex (simple). 40. Red. Jamaica. 1778.

SPATHICA RPA. (From *spathe*, a sheath, or spathe, and *karpos*, a fruit; the spadix, or flower-stem, fruiting in the sheath. Nat. ord., *Arads* [*Aracæ*]. Linn., 21-*Monæcia* 7-*Heptandria*. Allied to *Caladium*.)

Stove herbaceous perennial. Division of the plant; loam and peat. Winter temp., 50° to 60°; summer, 60° to 80°.

S. hastifolia (halbert-leaved). White. July. S. Amer.

SPATHODEA. (From *spathe*, a sheath; sheath, or spathe-like calyx. Nat. ord., *Bignoniads* [*Bignoniacæ*]. Linn., 14-*Didynamia* 2-*Angiospermia*.)

Cuttings of side-shoots, three or four inches in length, taken off with a heel, as growth is proceeding, in spring, inserted thinly in sand, under a bell-glass, and in a sweet bottom-heat; peat and loam. Winter temp., 50° to 60°; summer, 60° to 80°.

STOVE EVERGREEN CLIMBERS.

S. frasinifolia (ash-leaved). 10. Caraccas. 1822.

— *uncata* (hooked). 10. Yellow. Guiana. 1804.

STOVE EVERGREEN TREES.

S. corymbosa (corymbed). 6. Yellow. Trinidad. 1824.

— *laëvis* (smooth). 12. Purple. Guinea. 1825.

— *longiflora* (long-flowered). 12. Red. E. Ind. 1816.

— *pentaandra* (five-anthered). 20. Yellowish. June. India.

— *Rheedii* (Rheede's). 16. Cream. E. Ind. 1794.

— *Roxburghii* (Roxburgh's). 12. Pink. E. Ind. 1820.

SPATHOGLOTTIS. (From *spathe*, a sheath, and *glottis*, a tongue. Nat. ord., *Orchids* [*Orchidacæ*]. Linn., 20-*Gynandria* 1-*Monandria*. Allied to *Bletia*.)

Stove orchids, grown in pots. See ORCHIDS.

S. Fortunei (Fortune's). 3. Yellow. August. Hong Kong. 1844.

— *placata* (plaited). Purple. Penang. 1843.

SPAWN is the white, thready matter produced in the soil by Mushrooms, and by which they are propagated. It is doubtful whether it arises from their seed, or whether it is a mass of under-ground runners. See MUSHROOM.

SPECULARIA. (From the ancient name, *Speculum Venus*, or Venus's Looking-glass. Nat. ord., *Bellworts* [*Campanulacæ*]. Linn., 5-*Pentandria* 1-*Monogynia*.)

Annuals and all others, by seeds in pans, in a bed, under glass, in March and April; division of the herbaceous kinds in spring, and cuttings of

young shoots under a hand-light, in a shady place, in summer; cuttings of shrubby kinds under a glass, in sandy soil, in April; sandy loam, with a little peat, or reduced dried leaf-mould, for shrubby. Winter temp., 40° to 48°.

GREENHOUSE EVERGREENS.

S. diffusus (spreading). Blue. August. Cape of Good Hope. 1787.

— *fruticosus* (shrubby). 1. Blue. August. Cape of Good Hope. 1787.

GREENHOUSE HERBACEOUS.

S. interruptus (interrupted). 1. Blue. June. Cape of Good Hope. 1818.

— *nitidus* (shining). 3. White. June. Cape of Good Hope. 1787.

HARDY ANNUALS.

S. biflora (two-flowered). 1. Blue. June. Russia. 1836.

— *falcata* (sickle-petaled). 2. Rose. July. Mediterranean. 1820.

— *hybrida* (hybrid). 1. Rose. July. England.

— *pentagonia* (five-angled). 1. Blue. July. Levant. 1686.

— *perfoliata* (leaf-stem-pierced). 1. Blue. July. N. Amer. 1689.

— *speculum* (Venus's-looking-glass). 1. Green, white. July. South Europe. 1596.

— *calycina* (large-calxyed). July. Iberia.

— *libanica* (Libanian). July.

— *pubescens* (downy). July. France.

SPEEDWELL. *Veronica*.

SPENNE'RA. (Named after *M. Spenner*, a German botanist. Nat. ord., *Melastomads* [*Melastomacæ*]. Linn., 8-*Octandria* 1-*Monogynia*. Allied to *Rhexia*.)

Stove evergreens. Seeds, and cuttings of the young shoots in sand, under a bell-glass, and in heat; sandy peat and fibry loam. Winter temp., 50° to 60°; summer, 60° to 85°. *Acio'tis aquatica* should be added to this genus.

S. fragilis (brittle). 3. White. June. Trinidad. 1822.

— *glandulosa* (glanded). 3. White. March. Guiana. 1824.

— *paludosa* (marsh). 3. Rose. June. Brazil. 1825.

— *pendulifolia* (hanging-leaved). 3. Rose. March. Guiana. 1826.

SPERMADICTYON is *Hamiltonia azurea*.

4. Pale blue. January. Nepaul. 1823.

SPERMAXYRUM is *O'fax stricta*. 4. White. New Holland. 1820.

SPHERA'LEA. (From *sphaira*, a globe, and *alcea*, the Marsh Mallow; the seed-pods, or carpels, in globular heads. Nat. ord., *Mallowworts* [*Malvacæ*]. Linn., 16-*Monadelphica* 8-*Polygynia*. Allied to *Mallow*.)

Annuals, by seed in a hotbed, in April, planted out at the beginning of June; shrubs, by cuttings of young shoots in sandy soil, under a hand-light, in summer; loam and peat. Winter temp., 40° to 48°.

S. abutiloides (abutilon-like). 4. Purple. August. Bahamas. 1725.

— *angustifolia* (narrow-leaved). 8. Pink. August. Mexico. 1780.

— *Caroliniana* (Carolina). 1. Dark red. August. S. Amer. 1723.

- S. decumbens* (lying-down). 1. Red. April. S. Amer. 1815.
 — *elegantis* (elegant). 3. Red. July. Cape of Good Hope. 1791.
 — *obtusiloba* (blunt-lobed). 4. Purple. July. Chili. 1827.
 — *prostrata* (trailing). 1. Red. July. Brazil. 1806.
 — *umbellata* (umbelled). 4. Violet. April. New Spain. 1814.

SPHEROSTEMA. (From *sphaira*, a globe, and *stema*, a stamen; stamens collected into close clusters. Nat. ord., *Kadsurads* [Schizandraceæ]. Linn., 22-*Diœcia* 12-*Icosandria*.)

Stove evergreen climber. Cuttings of half-ripened shoots in sand, under a bell-glass, and in bottom-heat; sandy, fibry peat, fibry loam, with a little charcoal and broken pots, and well-drained. Winter temp., 45°; summer, 60° to 80°. A lower temperature even might be tried in winter, if the wood was well ripened.

- S. propinquum* (related). 10. Yellow. July. Nepaul. 1828.

SPHEROSTIGMA. (From *sphaira*, a globe, and *stigma*, the female organ. Nat. ord., *Onagradis* [Onagraceæ]. Linn., 8-*Octandria* 1-*Monogynia*. Allied to *Cnothera*.)

Hardy biennials and annuals, by seeds in the open border, in April; *cheiranthifolium* by cuttings of young shoots in spring.

- S. Chamissoi* (Chamisso's). 1. Yellow. August. Russia. 1837. Annual.
 — *cheiranthifolium* (wallflower-leaved). Yellow. June. Chili. 1820. Half-hardy evergreen.
 — *hirtum* (hairy). 4. Yellow. August. Russia. 1836. Biennial.
 — *minutiflorum* (small-flowered). 1. Yellow. August. Russia. 1837. Annual.

SPHAGNUM. This is a white-leaved Moss, commonly found on peat-bogs. Its botanical name is *Sphagnum palustre* or *S. obtusifolium*, Grey Bog Moss. It is an excellent material for packing plants in, being extremely retentive of moisture, and yet contains so much astringency as to check decay.

SPHENO'GYNE. (From *sphen*, a wedge, and *gyne*, female organ; the shape of pistil. Nat. ord., *Composites* [Asteraceæ]. Linn., 19-*Syngenesia* 3-*Frustranea*.)

All yellow-flowered, and natives of the Cape of Good Hope. Annuals, by seed, under protection in April, or in the open border in the end of May; shrubs, by cuttings of young shoots in sand, under a bell-glass, in a cool pit, in May; loam and peat, sandy and fibry. Winter temp., 40° to 45°.

HARDY ANNUALS.

- S. anthemoides* (chamomile-like). 4. August. 1774.
 — *feniculacea* (fennel-leaved). 1. August. 1825.
 — *leucanthemoides* (leucantha-like). 4. August. 1825.
 — *speciosa* (showy). 1. July. S. Amer. 1836.

GREENHOUSE EVERGREENS.

- S. abrotanifolium* (southernwood-leaved). 1. July. 1789.

- S. erithimifolia* (sampire-leaved). 1. July. 1768.
 — *dentalta* (tooth-leaved). 14. June. 1787.
 — *odorata* (sweet-scented). 1. May. 1771.
 — *piliifera* (hairy). 14. December. 1824.
 — *scario'sa* (membranous). 1. June. 1774.
 — *serrata* (saw-edged). June. 1826.

SPHENO'TOMA. (From *sphenoo*, to cleave, and *tome*, a section; limb or border of the flower deeply cut. Nat. ord., *Epacrids* [Epacridaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Dracophyllum*.)

Greenhouse, white-flowered evergreens, from New Holland. Cuttings of young shoots when a couple of inches in length, provided they are getting a little firm at the base, in sand, under a bell-glass, in spring; sandy, fibry peat, with a little charcoal. Winter temp., 38° to 45°; might be tried in a very sheltered rock-work, among peat and broken freestone.

- S. capitatum* (head-spiked). 1. April. 1830.
 — *gracile* (slender). 4. May. 1823.

SPIDERWORT. *Tradescantia*.

SPIELMANNIA. (Named after J. R. Spielmann, a German botanist. Nat. ord., *Verbenas* [Verbenaceæ]. Linn., 14-*Didynamia* 2-*Angiospermia*. Alliance near to *Lantana*.)

Greenhouse evergreen shrub. Cuttings of young shoots in sand, under a bell-glass, at any time except winter; sandy loam and leaf-mould. Winter temp., 35° to 45°.

- S. Africa'na* (African). 3. White. July. Cape of Good Hope. 1710.

SPICE'LIA. Worm Grass. (Named after A. Spigelius, a botanist at Padua. Nat. ord., *Loganiads* [Loganiaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*.)

Annual, by seed under the usual treatment; hardy herbaceous, by seed and division of the roots; loam and peat.

- S. Anthelmia* (Anthelmia). 14. Red. July. S. Amer. 1759. Stove annual.
 — *Mariandica* (Maryland). 1. Scarlet. July. N. Amer. 1694. Hardy herbaceous.

SPINACH. *Spina'cia oleracea*.

There are the *Round-leaved*, or *Smooth-seeded*, and the *Triangular-leaved*, or *Prickly-seeded*. The first being the most succulent, is employed for the spring and summer crops, and the latter for autumn and winter. The *Lettuce-leaved* and the *Flanders* are hardy for a winter crop, and by much the best.

Soil.—For the round-leaved variety, a rich, light, moist loam, in an open situation, is preferable; but for the triangular-leaved, and other winter varieties, a light, moderately fertile, and dry border. The earth should always be well pulverized at the time of digging, and the soil for the summer crops cannot be too rich. Liquid-manure is highly beneficial to them, and when made of blood and the most fertilizing matters, the greater the benefit.

Sow of the round-leaved variety at the close of January in a warm situation, to be repeated in larger, but still small breadths, at the commencement and end of February, and to be continued every three weeks until the middle of April, when it must be performed once a week until the close of May, and then once a fortnight till the end of July. In August sow at intervals of three weeks until the early part of September. Sow thinly in drills half an inch deep and a foot apart. The sowing should be in showery weather, otherwise an occasional watering must be given; for if there is a deficiency of moisture during the first grades of vegetation, not half of the seedlings will come up. The triangular-leaved plants must be thinned to four or five inches apart, and the round-leaved to eight. Thin by degrees, separating them at first only an inch or two, as the plants of the several thinnings are fit for use. The thinning ought to commence when they have attained four leaves about an inch in breadth. Regular gathering promotes the health of the plants. The outer leaves only should be gathered at a time, the centre being left uninjured, to produce successional crops. This direction applies chiefly to the winter-standing crops; those of the summer may be cut off close to the root.

To obtain Seed.—A sowing of each variety may be made in February or March, according to the openness of the season; or, of the round-leaved variety, some plants of a regular crop may be allowed to run up in April or May; and of the triangular-leaved, some plants of the winter-standing crops may be transplanted in March. Set them twelve inches apart. Spinach is dioecious, and many ignorant persons, perceiving some of the plants to have no appearance of bearing seed, advise these to be pulled up; but they are the male-bearing plants, without which the others would be unfruitful. If, however, they are very numerous, some of them may be removed with benefit to those that remain, care being taken that some are left in every part of the bed. When the seed is set the male plants may be entirely removed. When the seed is ripe in July or August, the plants ought to be pulled up, and laid to dry thoroughly on a cloth, previously to its being beaten out and stored.

SPINA'CIA. Spinach. (From *spina*, a

prickle; seeds prickly. Nat. ord., *Chenopods* [*Chenopodiaceæ*]. Linn., 22-*Diæcia* 5-*Pentandria*.)

Hardy, green-flowered annual. See SPINACH.

S. oleracea (potherb). 1½. June. 1568.

— *glabra* (smooth-seeded). 1½. June.

— *spinosa* (prickly-seeded). 1½. June.

SPINDLE-TREE. *Euo'nymus*.

SPIRÆ'A. (From *speira*, anything wreathed; the flowering branches used in garlands. Nat. ord., *Roseworts* [*Rosaceæ*]. Linn., 12-*Icosandria* 2-*Di-pentagynia*.)

All white-flowered, except where otherwise mentioned. Herbaceous and tuberous, by division of the plant in spring; shrubs, by cuttings, layers, and suckers; good garden-soil.

HARDY TUBEROUS-ROOTED.

S. filipe'ndula (dropwort). 2. September. Britain.

— *minor* (smaller). 1½. August. Europe.

— *pube'scens* (downy). 1½. August. France.

HARDY HERBACEOUS.

S. aru'nceus (goat's-beard). 4. June. Siberia. 1633.

— *Americana* (American). 4. June. N. Amer.

— *barbata* (bearded). 4. June. Nepaul. 1835.

— *demida'ta* (naked). July. South Europe.

— *digitata* (hand-leaved). 2. Red. July. Siberia. 1823.

— *lobata* (lobed). 2. Red. July. N. Amer. 1765.

— *palmaria* (hand-leaved). 2. Red. July. China. 1823.

— *rotundifo'lia* (round-leaved). June. Cashmere. 1840.

— *ulmaria* (meadow-sweet). 2. August. Britain.

— *multi'plex* (double-flowered). 2. August. Britain.

— *variega'ta* (variegated). 2. July. Britain.

— *ulmifo'lia* (elm-leaved). 3. June. Carniola. 1790.

— *phyl'lantha* (leafy). 3. June.

— *Ura'len'sis* (Uralian). 4. April. Uralia. 1817.

— *vaciniifo'lia* (whortleberry-leaved). July. India. 1820.

HARDY DECIDUOUS SHRUBS.

S. acutifo'lia (acute-leaved). 4. May. Siberia. 1817.

— *alpi'na* (alpine). 3. July. Siberia. 1805.

— *argen'tea* (silvery). Nepaul.

— *ariæfo'lia* (white-beam-leaved). 8. June. N. Amer. 1827.

— *bell'a* (pretty). 2. Red. July. Nepaul. 1820.

— *betulifo'lia* (birch-leaved). 2. Pink. June. N. Amer. 1812.

— *ca'na* (hoary). 1½. June. Hungary. 1825.

— *capitata* (headed). 3. June. Columbia. 1826.

— *ceanothifo'lia* (ceanothus-leaved). 2. June. 1823.

— *chamædri'fo'lia* (germander-leaved). 4. June. Siberia. 1789.

— *inci'sa* (cut-leaved). 1½. June. Germany.

— *me'dia* (intermediate). 1½. June. Germany.

— *oblongifo'lia* (oblong-leaved). 3. June. Hungary. 1816.

— *subracemo'sa* (sub-racemed). 1½. June.

— *vulgaris* (common). 1½. July.

— *corymbo'sa* (corymbed). 1½. July. Virginia. 1819.

— *soro'ria* (sister). 2. August. N. Amer. 1829.

— *cratægi'fo'lia* (hawthorn-leaved). 3. July. Siberia. 1812.

- S. crenata* (scollop-leaved). 2. April. Podolia. 1739.
 — *cuneifolia* (wedge-leaved). 3. India.
 — *expansa* (spreading). 3. Pink. June. Ka-moon. 1846.
 — *flexuosa* (zigzag). 4. June. Europe. 1820.
 — *grandiflora* (large-flowered). White. May. China.
 — *hypericifolia* (hypericum-leaved). 5. April. N. Amer. 1640.
 — — *Plunkenetia*'na (Plunkenet's). April. Canada.
 — *Kamtschatica* (Kamtschatka). June. N. Amer. 1830.
 — — *Himalensis* (Himalayan). 2. June. North India. 1838.
 — *lavigata* (smooth-leaved). 4. Red. May. Siberia. 1774.
 — *lanceolata* (spear-head-leaved). Mauritius.
 — *latiflora* (loose-flowered). 2. June. India. 1838.
 — *obovata* (reversed - egg - leaved). 3. June. Hungary. 1816.
 — *opulifolia* (guelder-rose-leaved). 5. June. N. Amer. 1690.
 — — *tomentella* (slightly-woolly). 5. June. N. Amer.
 — *Pickowiensis* (Pickow). 4. June. Podolia. 1807.
 — *prunifolia* *sto-re-pleno* (double - flowered - plum-leaved). 6. March. China. 1844.
 — *pube'scens* (downy). 5. March. Chusan. 1843.
 — *salicifolia* (willow-leaved). 5. July. Britain.
 — — *alpe'stris* (alpine). 5. July. Russia. 1920.
 — — *carnea* (flesh-coloured). 5. Flesh. July. Britain.
 — — *grandiflora* (large-flowered). 4. Pink. July. Kamtschatka. 1827.
 — — *latifolia* (broad-leaved). 5. July. Europe.
 — — *paniculata* (panicked). July. N. Amer.
 — *Savranica* (Savranian). 4. April. Podolia. 1819.
 — *sorbifolia* (service-leaved). 4. August. Siberia. 1759.
 — — *alpina* (alpine). 3. August. Siberia. 1817.
 — *thaietroides* (meadow-rue-like). 2. June. Dauria. 1806.
 — *Tobolskia* (Tobolsk). 4. June. Russia. 1823.
 — *tomentosa* (downy). 5. August. N. Amer. 1736.
 — *trilobata* (three-lobed). 3. May. Altai. 1801.

HARDY EVERGREEN SHRUBS.

- S. Douglasii* (Douglas's). Rose. August. Columbia.
 — *fissa* (cut-leaved). 3. November. Mexico. 1841.
 — *Lindleyana* (Lindley's). Himalayas.
 — *Reevesiana* (Reeves's). 3. May. China. 1843.

SPIRANTHERA. (From *speira*, spiral, and *anthera*, an anther; twisted anthers. Nat. ord., *Rueworts* [Rutaceæ]. Linn., 5-Pentandria 1-Monogynia.)

Stove evergreen. Cuttings of short, stubby side-shoots in sand, under a bell-glass, in a sweet bottom-heat, the glass to be removed at night; sandy loam and fibry peat. Winter temp., 50° to 60°; summer, 60° to 80°.

S. odoratissima (sweetest-scented). 6. White, red. Brazil. 1823.

SPIRANTHES. Lady's Traces. (From *speira*, spiral, and *anthos*, a flower; flowers arranged spirally. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-Gynandria 1-Monandria. Allied to *Neottia*.)

Stove terrestrial orchids, grown in pots. See ORCHIDS.

- S. argentea* (silvery). White. April. Brazil. 1843.
 — *aurca* (golden). Olive, brown. April. Guatemala. 1842.
 — *bracteosa* (long-bracted). 1. White, yellow. May. St. Catherine. 1835.
 — *diuretica* (diuretic). Green, white. August. Valparaiso. 1838.
 — *grandiflora* (large-flowered). Green. September. N. Amer. Half-hardy.

SPIRONE'MA. (From *speira*, spiral, and *nema*, a filament; stamens spiral. Nat. ord., *Spiderworts* [Commelynacæ]. Linn., 6-Hexandria 1-Monogynia. Allied to *Tradescantia*.)

Greenhouse herbaceous. Seeds, and division of the roots; sandy, fibry peat and loam. Winter temp., 45° to 55°; summer, 60° to 80°.

S. fragrans (fragrant). 1. White. May. Mexico. 1839.

SPLEENWORT. *Asplenium*.

SPO'NDIAS. Hog Plum. (The ancient name of a wild Plum; resemblance of fruit. Nat. ord., *Anacards* [Anacardiaceæ]. Linn., 10-Decandria 4-Pentagynia.)

Stove evergreen trees. Cuttings of half-ripened shoots in sand, under a bell-glass, in heat, in May or June; loam and peat. Winter temp., 50° to 55°; summer, 60° to 80°.

S. acuminata (pointed-leaved). June. Malabar. 1824.

— *axillaris* (axillary). May. Nepal. 1824.
 — *lutca* (yellow-fruited). 50. Yellow, green. W. Ind. 1739.

— *purpurea* (purple-fruited). 30. White, green. W. Ind. 1817.

SPONGE-TREE. *Acacia farnesiana*.

SPORTING is the term whereby gardeners describe any deviation from the usual form or colours of a plant or flower.

SPOT, a disease occurring on the leaves of the pelargonium, is a dry gangrene, occasioned by an irregularity in the supply of moisture and vicissitudes of temperature, but especially if one of the extremes is much below the degree of heat most favourable to the healthy growth of that plant. The reason of this is very obvious. If a pelargonium, or any other plant, be placed in a highly stimulating heat, and is abundantly supplied with root moisture, it immediately increases its surface of leaf to elaborate and digest the large amount of sap forwarded from the roots. If this amount of sap is subsequently suddenly reduced, by lowering the temperature and adding water to the soil less freely, the increased surface of leaf is no longer required, and it is a law pervading all the vegetable creation that the moment any one of the parts of a plant is unnecessary to it, immediately that part begins to decay.

SPREKE'LIA. (Named after *Dr. Sprekel*,

a German botanist. Nat. ord., *Amurysyllids* [*Amurysyllidaceæ*]. Linn., 6-*Hexandria* 1-*Monogynia*.)

This is the new name for the old *Amurysyllis formosissima*, or Jacobæa Lily, not by Dr. Herbert, but by Heister, a German botanist; and Dr. H. had some doubts latterly of its correctness. Stove bulbs. For culture, see HIPPEASTRUM.

S. brevius (short-flowered). 1. Green, red. June. Bolivia. 1839.

— *cybister* (tumbler). Red. June. Bolivia. 1839.

— *formosissima* (handsome). 3. Crimson. June. Guatemala. 1658.

— *glauca* (milky-green). 1. White. April. Bolivia. 1839.

SPRENGELIA. (Named after C. Sprengel, naturalist. Nat. ord., *Epacrids* [*Epacridaceæ*]. Linn., 5-*Pentandria* 1-*Monogynia*.)

Greenhouse evergreen. Cuttings of short young shoots, a little firm at the base, in sand, under a bell-glass, in spring and early summer. Winter temp., 35° to 45°.

S. incarnata (flesh-coloured). 2. Flesh. May. N. S. Wales. 1793.

SPRUE. A market name for the smallest sprouts of asparagus.

SPURGE LAUREL. *Da'phne laure'ola*.

SPURLESS VIOLET. *Erpetion*.

SPURRING is cutting the lateral or side-shoots, so as to leave only a few buds in length of them projecting from the main branches.

SQUASH. (*Cucu'rbita melope'po*.) See CUCU'RBITA.

SQUILL. *Scilla*.

STAA'VIA. (Named after M. Staaf, a correspondent of Linnæus. Nat. ord., *Bruniads* [*Bruniaceæ*]. Linn., 5-*Pentandria* 1-*Monogynia*.)

Greenhouse, white-flowered evergreens, from the Cape of Good Hope. Cuttings of young shoots in sand, under a bell-glass; sandy, fibry peat. Winter temp., 38° to 45°.

S. cilin'ta (hair-fringed-leaved). 1½. June. 1812.

— *glutinosa* (clammy). 1½. April. 1793.

— *radia'ta* (rayed). 1. May. 1787.

STACHYS. Hedge Nettle. (From *stachys*, a spike; their manner of flowering. Nat. ord., *Lipworts* [*Lamiaceæ*]. Linn., 14-*Didynamia* 1-*Gymnospermia*.)

Herbaceous perennials, by seeds and divisions; shrubs, by cuttings under a hand-light, in sandy soil, in summer. The tender kinds require a cold pit or greenhouse in winter. There are many annuals and biennials, but not worth culture.

HARDY EVERGREENS.

S. fruticulosa (small-shrubby). 1. Purple. July. Caucasus. 1818.

— *Palestina* (Palestine). 1. Purple. July. Syria. 1820.

— *stenophylla* (narrow-leaved). 1. Yellow. July. Spain. 1823.

GREENHOUSE EVERGREENS.

S. Lama'rekii (Lamarck's). Yellow. July. Cape of Good Hope. 1820.

S. rugosa (wrinkly). 2. Pale yellow. July. Cape of Good Hope. 1774.

HARDY HERBACEOUS.

S. alopecu'rus (foxtail-grass-like). 1½. Red. July. South Europe. 1759.

— *coccinea* (scarlet). 3. Scarlet. July. S. Amer. 1798.

— *fenniculum* (fennel-scented). 2. Blue. May. N. Amer. 1824.

— *Germanica pubescens* (German-downy). 2. Purple. August. Germany. 1826.

— *glutinosa* (clammy). 1. Purple. June. Candia. 1729.

— *grandiflora* (large-flowered). 1½. Purple. May. Siberia. 1800.

— *hirsuta* (hairy). 3. Purple. June. Italy. 1710.

— *incana* (hoary). 3. Flesh. June. Italy. 1759.

— *Italica* (Italian). 6. Purple. June. Europe.

— *lanata* (woolly). 2. Striped. July. Siberia. 1782.

— *macrou'ra* (long-tailed). 1. Pale red. July. Europe. 1820.

— *mentha'folia* (mint-leaved). Yellow. July. Dalmatia. 1838.

— *ni'vca* (snowy). 1. Red. July. Caucasus. 1820.

— *officina'lis* (shop). 1. Purple. August. Britain.

— *al'ba* (white-flowered). 1. White. August. Britain.

— *orienta'lis* (eastern). 1. Light purple. August. Levant. 1737.

— *pubescens* (downy). Yellowish. July. Europe. 1816.

— *re'cta* (upright). 2. Yellow. July. South Europe. 1683.

— *sericea* (silky). 1. Lilac. August. Nepaul. 1830.

— *officina'lis* (late-flowering). 1½. Red. August. Austria. 1832.

— *setifera* (bristly). 1½. Red, brown. Caucasus. 1837.

— *speciosa* (showy). 4. Scarlet. July. Mexico. 1839.

— *stricta* (upright). 1½. Purple. June. Denmark. 1592.

STACHYTA'RPHETA. Bastard Vervain. (From *stachys*, a spike, and *tarpheios*, dense; mode of flowering. Nat. ord., *Verbenas* [*Verbenaceæ*]. Linn., 2-*Diandria* 1-*Monogynia*. Allied to *Verbena*.)

Annuals and biennials treat as tender stove annuals; perennials, by division; shrubs, by cuttings under a bell-glass, in sand, and in bottom-heat; sandy loam and leaf-mould. Winter temp., 50° to 60°; summer, 60° to 85°. *Mutabilis* is very interesting.

STOVE EVERGREENS.

S. arista'ta (awned-bracted). 2. Purple. September. S. Amer. 1845.

— *caru'lea* (blue). 2. Deep blue. July.

— *crassifolia* (thick-leaved). Violet. June. Brazil. 1826.

— *hirta* (hairy). Violet. July. New Granada. 1821.

— *mutabilis* (changing-flowered). 3. Orange. June. S. Amer. 1801.

STOVE BIENNIALS.

S. elatior (taller). Violet. October. Brazil. 1821.

— *Jamaicensis* (Jamaica). 2. Blue. July. W. Ind. 1714.

— *Orubica* (Orubian). 3. Violet. July. Panama. 1699. Annual.

— *prismatica* (prismatic). 2. Blue. May. W. Ind. 1699.

— *umbrosa* (shady). Blue. May. Cumana. 1829.

— *urticifolia* (nettle-leaved). 2. Blue. June. S. Amer.

— *Zuccagnii* (Zuccagni's). Rose, violet. June. 1824.

STACHYU'RUS. (From *stachys*, a spike, and *euros*, broad. Nat. ord., *Pittosporads* [*Pittosporaceæ*]. Linn., 5-Pentandria 1-Monogynia.)

Half-hardy evergreen shrub. Cuttings of the points of shoots in sand, under a bell-glass, in April; fibry, sandy loam and a little peat. Winter temp., 35° to 45°.

S. præcox (early). Pink. April. Japan.

STACKHOU'SIA. (Named after *Mr. Stackhouse*, a British botanist. Nat. ord., *Stackhousiads* [*Stackhousiaceæ*]. Linn., 5-Pentandria 3-Trigynia.)

New Holland plants. Perennial, by division of the plant in spring; shrubs, by cuttings in sand, under a bell-glass, in summer. Winter temp. for latter, 35° to 45°.

S. linariaefolia (flax-leaved). 2. 1823. Evergreen. — *mono'gyna* (one-styled). 1. Pink. April. 1835.

Hardy herbaceous.

spathulata (spatulate). White. April. 1835. Evergreen.

STADMAN'NIA AUSTRA'LIS, a greenhouse evergreen from New Holland, should be joined to *Cupania*.

STÆHEL'NA. (Named after *B. Stehelin*, a Swiss botanist. Nat. ord., *Compositæ* [*Asteraceæ*]. Linn., 19-Syngenesia 1-Æqualis. Allied to *Arctium*.)

Half-hardy, purple-flowered, deciduous shrubs. Cuttings in sandy soil, under a hand-light, in summer; sandy, fibry loam and leaf-mould; require the protection of a cold pit in winter.

S. arboreascens (tree-like). 6. August. Candia. 1739.

— *chamæpau'ce* (ground-pine-leaved). 2. July. Candia. 1640.

— *du'bia* (doubtful). 3. June. South Europe. 1640.

STAFF-TREE. *Cela'strus*.

STANDARD. A tree unsupported by a wall or trellis.

Full Standards are such trees as are trained with tall, straight stems, six or seven feet high, clear of branches, and are then suffered to branch out.

Half Standards are trees trained with short stems only two or three feet high, then suffered to branch out at that height to form heads; having low heads the fruit is more easily gathered. *Concave dwarfs* have the middle hollow, and the branches all round in a cup form. *Horizontal dwarfs* have the branches extended all round in a flat or horizontal position, but the concave dwarf is to be preferred.

STANHO'PEA. (Named after *Earl Stanhope*. Nat. ord., *Orchids* [*Orchidaceæ*]. Linn., 20-Gynandria 1-Monandria.)

Stove orchids, grown in pots. See **ORCHIDS**.

S. aurantia (orange-coloured). Orange. June. La Guayra. 1840.

— *au'rea* (golden). Yellow. May. Guatemala. 1835.

S. Ba'rkeri (Barker's). Yellow, brown. July. Mexico.

— *buce'phalus* (bull-horned). 2. Yellow, crimson. May. Quito. 1843.

— *Deconie'nsis* (Duke of Devonshire's). 1½. Yellow, crimson. June. Peru. 1833.

— *expa'n'sa* (expanded). Various. May. Mexico. 1841.

— *grandiflo'ra* (large-flowered). 1. White. June. Trinidad. 1824.

— — *alba* (white). White. June. Demerara. 1841.

— — *incarna'ta* (flesh-coloured). White, flesh. June. Demerara. 1835.

— — *odora'ta* (sweet-scented). White. June. Demerara. 1835.

— *grave'olens* (strong-scented). Straw. May. Peru. 1843.

— *guttula'ta* (small-spotted). Buff. June. Peru. 1843.

— *Harris'o'nia* (Mrs. Harrison's). June. Brazil. 1836.

— *inodo'ra* (scentless). Yellow, white. May. Mexico. 1844.

— *ins'ignis* (notable). 1. White, purple. September. Quito. 1826.

— — *at'ro-purpu'rea* (dark purple). White, purple. September. Brazil. 1830.

— — *fla'va* (yellow). Yellow, purple. September. Brazil. 1837.

— — *ful'va* (tawny). White, red. September. Brazil. 1838.

— — *lu'tea* (yellow). Yellow, purple. September. Brazil. 1834.

— — *ma'jor* (larger). Yellow, purple. September. Brazil. 1836.

— — *obscu'ra* (obscure). White, purple. September. Brazil. 1830.

— — *pal'lida* (pale). White, red. September. Brazil. 1830.

— *Li'ndleyi* (Lindley's). 1. Brown, red. August. Mexico. 1839.

— *ly'ncea* (lynx-plant). Various. June. Mexico.

— *maculo'sa* (spotted). 1. Blue, green. August. Mexico. 1839.

— *Martia'na* (Von Martius's). 1. White. May. Mexico. 1843.

— — *bi'color* (two-coloured-flowered). 1. White, purple. June. Mexico. 1843.

— *ocula'ta* (eyed). 2. White, purple. June. Brazil. 1829.

— — *Barkeria'na* (Barker's). 2. White, purple. June. Mexico.

— — *pal'lida* (pale). White, red. June. Mexico. 1836.

— — *ma'jor* (larger). White, purple. June. Mexico. 1835.

— *quadric'o'rnis* (four-horned). 2. Yellow, red. June. Spanish Main.

— *Ru'ckeri* (Mr. Rucker's). Yellow, brown. May. Guatemala. 1843.

— *Russellia'na* (Duke of Bedford's). Various. May. Brazil. 1843.

— *sacca'ta* (bagged). Yellow, green. May. Guatemala. 1836.

— — *pal'lida* (pale). Yellow. May. Guatemala. 1840.

— *tigri'na* (tiger-spotted). 2. Red, chocolate. July. Xalapa.

— — *atra'ta* (blackened). Orange, black. July. Guatemala. 1843.

— — *purpu'rea* (purple). Orange, purple. July. Guatemala. 1836.

— *trico'rnis* (three-horned). Pink, white. Peru.

— *venu'sta* (handsome). Guatemala. 1839.

— *Wardii* (Ward's). 1. Yellow, brown. August. Mexico. 1836.

STANLEYA. (Named after the *Earl of Derby*. Nat. ord., *Cruciferae* [Brassicaceae]. Linn., 15-Tetradynamia.)

Hardy herbaceous perennial. Seeds, and division of the plant in spring; sandy loam and vegetable mould.

S. pinnatifida (leaflet-like-leaved). 1. Yellow. June. Louisiana. 1816.

STAPELIA. (Named after *J. B. Stapel*, a Dutch botanist. Nat. ord., *Asclepiads* [Asclepiadaceae]. Linn., 5-Pentandria 2-Digynia.)

Greenhouse evergreens, from the Cape of Good Hope. Cuttings of shoots in spring, well-dried at the base before inserting them in sandy soil; sandy loam, brick-rubbish, and broken bricks, with top-dressings of rotten cow-dung when growing freely, or manure waterings. Winter temp., 40° to 50°, and dry; summer, 60° to 80°, and moisture, but with judgment at all times.

S. acuminata (pointed-leaved). 3. Purple-striped. August. 1795.

— *ambigua* (doubtful). 2. Purple, brown. June. 1795.

— *aperta* (open-flowered). 2. Yellow, purple. July. 1795.

— *asterias* (star-fish-like). 3. Violet. May. 1795.

— *bisulca* (two-furrowed). 1. Yellow-striped. July. 1805.

— *bufonia* (toad-like). 1. Yellow-striped. July. 1806.

— *cactiformis* (cactus-like). 3. Yellow-striped. August. 1844.

— *cane-scens* (hoary). 3. Brown. July. 1795.

— *ciliata* (hair-fringed). 3. Green-striped. November. 1795.

— *coma'ta* (tufted). 1. Pale yellow. September. 1819.

— *compacta* (compact). 3. Brown. August. 1800.

— *concinna* (neat). 3. Green. July. 1798.

— *deco'ra* (graceful). 3. Yellow-striped. March. 1795.

— *depressa* (depressed). 3. Brown, purple. July.

— *divaricata* (straggling). 3. Flesh-coloured. August. 1793.

— *elegans* (elegant). 3. Purple. August. 1795.

— *fistirostris* (split-beaked). 2 3/4. Yellow, green. 1823.

— *flavicomata* (yellow-tufted). 3. Yellow. 1810.

— *fusca'ta* (browned). 3. Brown, purple. July. 1814.

— *geminata* (twin-flowered). 3. Purple. March. 1795.

— *gemmiflora* (gem-flowered). 3. Dark purple. October. 1795.

— *glandulifera* (glanded). 3. Yellowish. August.

— *glanduliflora* (gland-flowered). 3. Brown. August. 1795.

— *glau'ca* (milky-green). 2. Red, purple. July. 1799.

— *glomerata* (crowded). 3. Brown. August. 1804.

— *Gordon's* (Gordon's). 1. Yellow, brown. 1796.

— *grandiflora* (large-flowered). 1. Dark purple. October. 1795.

— *Gussoneana* (Gussone's). 3. Red-striped. October. Sicily. 1833.

— *hamata* (hooked). 3. Blood-red. July. 1820.

— *hirsuta* (hairy). 3. Purple. July. 1710.

— *atra* (dark-flowered). 3. Dark purple. July. 1710.

— *hirtella* (rather hairy). 3. Brown. August. 1800.

— *hispidula* (rather bristly). 3. Green. July. 1824.

S. Jacquiniana (Jacquin's). 3. Purple. August. 1802.

— *juvencula* (girlish). 1. Brown. Purple. July.

— *lavigata* (smooth). 3. Brown. August. 1800.

— *lunigera* (woolly). 3. Brown. August. 1800.

— *lu'cida* (shining). 1. Purple. July. 1812.

— *maculosa* (spotted). 1. Brown-striped. August. 1804.

— *marginata* (red-edged). 3. Yellow-striped. July. 1805.

— *marmorata* (marbled). 1. Yellow-striped. July. 1820.

— *Massoni* (Masson's). 2.

— *mixta* (mixed). 1. Yellow-striped. July. 1800.

— *moschata* (musky). 3. Brown, purple. July.

— *multiflora* (many-flowered). 1. Violet, red. September. 1817.

— *mutabilis* (changeable). 3. Yellow-striped. June. 1823.

— *normalis* (regular-spotted). 3. Yellow-striped. July. 1821.

— *ophiuncula* (small-serpent). 3. Brown. July. 1805.

— *paniculata* (panicked). 3. Green, brown, purple. July. 1805.

— *patula* (spreading). 1. Orange. July. 1797.

— *picta* (painted). 3. Yellow-striped. August. 1799.

— *pallida* (pale). 3. Pale blue. 1818.

— *pilifera* (hairy-tubercled). 1. Dark purple. July. 1790.

— *planiflora* (flat-flowered). 3. Pale yellow. August. 1805.

— *pulchella* (neat). 3. Yellow-striped. May. 1795.

— *pulchra* (beautiful). 3. Yellow-striped. August. 1800.

— *pulvinata* (cushion-flowered). 3. Dark violet. August. 1795.

— *quinquenervis* (five-nerved). 1. Yellow-striped. May. 1800.

— *ramosa* (branchy). 1 1/2. Dark purple. June. 1795.

— *reflexa* (bent-back). 3. Green, purple. July.

— *retusa* (bitten-off). 3. Yellow-striped. July. 1800.

— *revoluta* (curled-back-flowered). 1. Purple. July. 1790.

— *rustica* (rusty-brown). 3. Brown. September. 1795.

— *rugosa* (wrinkled). Purple, green. June.

— *Simsii* (Sims's). 3. Dark purple. July. 1800.

— *stricta* (upright). 3. Pale blue. August. 1814.

— *serrulata* (saw-edged). 3. Purple. July. 1805.

— *sororia* (sister). 1. Dark purple. July. 1797.

— *spectabilis* (showy). 1. Dark purple. December. 1802.

— *stellaris* (starry). 3.

— *Stygia* (Stygian). 3. Dark purple. August. 1810.

— *variegata* (variegated). 1. Yellow-striped. August. 1727.

— *variabilis* (variable). Yellow, red. June. 1823.

— *velutla* (stale). 3. Dark purple. August. 1793.

— *Wendlandia* (Wendland's). 1. Yellow-striped. August. 1818.

STAPHYLEA. Bladder-Nut. (From *staphyle*, a bunch; flowers in clusters. Nat. ord., *Bladder-Nuts* [Staphyleaceae]. Linn., 5-Pentandria 3-Trigynia.)

Hardy, white-flowered, deciduous shrubs. Seeds sown when ripe, remaining a year or more in the soil; cuttings in September; layers and suckers, any light soil. *Occidentalis* requires a hothouse, but it scarcely deserves one; *pinna'ta* is singular from its large bladder-capsules.

S. Bumalda (Bumaldan). June. Japan. 1804.

— *occidentalis* (western). 30. Jamaica. 1824.

— *pinna'ta* (leafleted). 6. June. England.

— *trifolia* (three-leaved). 6. May. N. Amer. 1640.

STAR APPLE. *Chrysophyllum*.

STAR FISH. *Staphelia asterias*.

STAR HEAD. *Asteroccephalus*.

STAR OF BETHLEHEM. *Ornithogalum*.

STAR THISTLE. *Centauria calcitrapa*.

STARTING. A term used to designate the hastening the commencement of growth, either in a seed or plant, by submitting it to artificial heat.

STATICE. Sea Lavender. (From *statio*, to stop; the powerful medical astringency of some of the species. Nat. ord., *Leadworts* [*Plumbaginaceæ*]. Linn., 5. *Pentandria* 6. *Polygynia*.)

Hardy perennials, by division and seeds, and tender species by similar means, and also by cuttings; those requiring a cold pit and greenhouse flourish best in sandy, fibry loam and a little peat, also good and fibry.

GREENHOUSE EVERGREENS.

S. arbores (tree). 2. Blue. July. Teneriffe. 1829.

— *Dicksunii* (Dickson's). Purple. May. 1840.

— *echinoides* (echium-like). 1. Pale blue. July.

South Europe. 1752. Biennial.

— *grandiflora* (large-flowered). 1836.

— *monopetala* (one-petaled). 3. Purple. July.

Sicily. 1731.

— *denudata* (naked-stemmed). 3. Purple.

July. Sicily. 1640.

— *suffruticosa* (under-shrubby). $\frac{1}{2}$. Blue. July.

Siberia. 1799.

HALF-HARDY HERBACEOUS.

S. Ægyptiaca (Egyptian). $1\frac{1}{2}$. Pale pink. May.

Ararat. 1829.

— *ala'ta* (winged). 1. Purple, yellow. July. 1806.

— *auriculata* (eared). $\frac{3}{4}$. Blue. July. Galicia. 1817.

— *auriculifolia* (auricula-leaved). $\frac{3}{4}$. Red. July.

Barbary. 1781.

— *austri'lis* (southern). 1. N. Holland. 1823.

— *cine'ra* (grey). 1. Blue. July. Cape of Good

Hope. 1810.

— *congesta* (crowded). Red. July. Altai. 1837.

— *conspicua* (conspicuous). 1. Pink. July.

Russia. 1804.

— *cordata* (heart-leaved). $\frac{2}{3}$. Blue. June. South

Europe. 1752.

— *emarginata* (notched-ended). $\frac{2}{3}$. Purple. May.

Gibraltar.

— *foliosa* (leafy). 1. Purple, white. July. Gra-

ciosa. 1830.

— *frutescens* (shrubby). 1. Blue. Canaries. 1847.

— *imbricata* (imbricated). Teneriffe. 1829.

— *incana* (hoary). 1. Pink. July. Egypt. 1823.

— *limonium* (limonium. *Wild Marsh Beet*). 1.

Blue. July. England.

— *macrophylla* (large-leaved). 2. White. May.

Canaries. 1824.

— *muconata* (spine-pointed). 1. Red. July. Bar-

barry. 1784.

— *ovalifolia* (oval-leaved). 1. White. July. Ca-

nares. 1816.

— *pectinata* (comb-like). $\frac{2}{3}$. Blue. September.

Canaries. 1780.

— *pseud-armeria* (false-armeria). Violet. April.

1840.

— *puberula* (rather downy). $\frac{2}{3}$. Violet. May. Gra-

ciosa. 1830.

— *pubescens* (downy). $\frac{1}{2}$. Red. July. South Eu-

rope. 1824.

— *purpurea* (purpled). 6. Purple. July. Cape

of Good Hope. 1800.

S. scabra (rough-branched). 1. Blue. June. Cape of Good Hope. 1788.

— *sinuata* (scalloped-leaved). 1. Purple, yellow. August. Levant. 1629.

— *speciosa* (showy). 1. White. July. Russia. 1776.

— *tetragona* (four-angled). 2. Red. July. Cape of Good Hope. 1820.

HARDY HERBACEOUS.

S. Altaica (Altaiian). 1. Blue. July. Siberia. 1820.

— *articulata* (jointed). $\frac{1}{2}$. Blue. July. South

France. 1826.

— *aurca* (golden). Golden. Siberia. 1832.

— *bellidifolia* (daisy-leaved). $\frac{3}{4}$. Pale blue. June.

Greece. 1810.

— *bicolor* (two-coloured). Purple, white. May.

1837.

— *binervosa* (two-nerved). 1. Blue. July. England.

— *Caroliniana* (Carolina). 1. Blue. June. Caro-

lina. 1820.

— *Caspica* (Caspian). 1. Pale blue. July. Cas-

pian Sea.

— *coriaria* (coriaria-like). $1\frac{1}{2}$. Lilac. July. Cau-

casus.

— *cuneata* (wedge-leaved). $\frac{1}{2}$. Blue. July. Si-

beria. 1820.

— *dichotoma* (two-ranked). $\frac{3}{4}$. Blue. July.

South Europe. 1810.

— *echin'us* (hedgehog). $\frac{1}{2}$. Red. July. Caucasus.

1813.

— *elata* (tall). 1. Blue. August. Siberia. 1820.

— *eximia* (choice). 1. Lilac, rose. August. Sou-

garia. 1844.

— *ferulacea* (ferula-leaved). 1. Yellow. July. Si-

beria. 1796.

— *flexuosa* (zigzag). 1. Purple. July. Siberia. 1791.

— *Fortunei* (Fortune's). 1. Yellow. April. China.

1845.

— *globulariifolia* (globularia-leaved). 1. White.

August. Mexico. 1821.

— *Gmelini* (Gmelin's). 1. Blue. July. Si-

beria. 1796.

— *Græca* (Greek). $\frac{1}{2}$. White. June. Greece. 1810.

— *graminifolia* (grass-leaved). 1. Red. June.

Siberia. 1780.

— *latifolia* (broad-leaved). 1. Blue. June. Si-

beria. 1791.

— *minuta* (small). $\frac{1}{2}$. Red. June. Mediterranean.

1658.

— *na'na* (dwarf). $\frac{1}{2}$. Blue. July. Britain.

— *oleifolia* (olive-leaved). 1. Red. July. Italy.

1688.

— *pruinosa* (frosted). 1. White. July. South

Europe. 1823.

— *rariflora* (thin-flowered). Blue. July. Britain.

— *reticulata* (netted). $\frac{1}{2}$. Blue. July. England.

— *rytidophylla* (file-leaved). 3. Blue. May.

Port Natal. 1840.

— *scoparia* (broom-like). 1. Blue. July. Siberia.

1796.

— *spatulata* (spatula-leaved). 1. Purple. July.

Barbary. 1804.

— *spicata* (spiked). $\frac{1}{2}$. White. July. Caucasus.

1819. Annual.

— *Tatarica* (Tartarian). $1\frac{1}{2}$. Pink. June. Russia.

1731.

— *Thouinii* (Thouin's). 1. Blue. August. New

Africa. 1700.

— *viminea* (twiggy). $\frac{1}{2}$. Blue. July. 1818.

— *virgata* (rod like). $1\frac{1}{2}$. Blue. July. Spain.

— *Willdenowiana* (Willdenow's). $\frac{1}{2}$. Violet. July.

France. 1800.

STATIONS FOR FRUIT-TREES. Unless the soil is good, this is the best mode of planting; and it often renders draining

unnecessary. If the soil be too wet, the hole need only be half the prescribed depth; the other half may rise above the ordinary ground level. If too dry, there is no occasion to elevate the surface, only care must be taken not to place the collar of the tree too deep, which is a serious fault under all circumstances. Let the stations extend three feet on each side the position for the tree, thus producing an excavation of six feet square. Two feet in depth is amply sufficient for any fruit-tree, especially for a dwarfing plan. The soil then should be thrown entirely out, and four or five inches more must be allowed for some impervious material, which we will presently describe. In throwing out the soil, care must be taken to place it in samples, or both labour and material will be wasted. It very frequently happens that three distinct samples of soil or subsoil will come to hand during the operation. Of course all clayey, or sour, and badly-coloured subsoil must be rejected, and its amount will be supplied by the new material to be introduced; and if this is scarce, any ordinary surface-soil may be in part substituted. In filling the materials back again, the best of the original surface-soil must be kept downwards, mixing it thoroughly with the new soil; the inferior or second-rate soil may be kept to dress the surface with. As to character of soil to be introduced, that depends partly upon the soil already existing in the garden, as well as on the kind of fruit-tree about to be planted. If the soil is naturally sandy and dry, a very stiff or clayey loam should be selected; if naturally clayey, any fresh, mellow, sandy loam, or even the paring of roadsides, commons, or lanes, will prove excellent material. The furrowings of old leys from what is considered good wheat soil, is, however, of all other soils the best adapted for general fruit culture. Whatever materials are used, let it be remembered that the more of turfy matter that can be introduced, the longer will the compost endure. Any sort of turf, even from hungry situations, is most relished by fruit-trees. If, nevertheless, no turf can be obtained, and the soil is loose and poor, it is well to introduce any refuse vegetables of a dry character, such as decayed bean or pea haulm, ordinary straw, old thatch, or, indeed, anything of a decaying vegetable character which is strong in fibre and

enduring. If any manure is thought necessary, it should be fresh from the stable or cow-shed, as such will endure longer in the soil; merely using one barrowful of mellow and rather rich soil to plant the tree in. As before observed, the most inferior portion of the soil may be reserved to dress the surface of the station with after the tree is planted; here it will do no harm, and will be in an improvable position. We now come to the hard materials for the bottom of the hole; four or five inches in depth, as before stated. It matters not what this is composed of: broken stones from quarries, brickbats, chalk, cinders, or clinkers, &c., all are eligible. These being rammed hard, throw a coating of fine-riddled cinders over the whole, or very fine gravel: this secures drainage, and prevents the roots entering to any injurious extent.

STAUROCA'NTHUS. (From *stauros*, a cross, and *akantha*, a spine; two side-spines at the base of the principal spine give it the resemblance of a cross. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 16-Monadelphia 6-Decandria. Allied to *Ulex*.)

Hardy evergreen. Seeds, and cuttings of young shoots under a hand-light, in summer, in sandy soil.

S. aphyllus (leafless). 3. Yellow. May. Portugal. 1823.

STAVES-ACRE. *Delphi'nium staphisagria*.

STEEPING. (See GERMINATION.) It is a very unfounded idea, that by steeping seeds in certain solutions the vigour and fecundity of the plants to which they give birth might be promoted. A certain degree of heat, oxygen gas, and water are all the requisites for germination, and until this process has commenced, no liquid but water at common temperatures will pass through the coverings of a seed. So soon as germination has commenced, this power to exclude foreign fluids ceases, but the organs starting into activity are so delicate, that the weakest saline solutions are too acid and offensive for them. So utterly incapable are the infant roots of imbibing such solutions, that at first they are absolutely dependent themselves for their very existence upon the seed-leaves, and if these are removed the plant either makes no further advance or altogether perishes. To hasten the germination of peas, beans, &c., it is a good plan to soak them in

water for twelve hours previously to sowing; and old seeds of all kinds have had their germinating powers aroused by putting them into water heated to 200°, and allowing them to remain in it until cold.

STELLA'RIA. Stitchwort. (From *stella*, a star. Nat. ord., *Clovesworts* [Caryophyllaceæ]. Linn., 10-*Decandria* 3-*Tri-gynia*.)

A genus of weedy herbs, with the exception of *Stella'ria holo'stea*, one of the prettiest flower-garden plants for May in the British Flora. Increased by division of the roots in spring or autumn, when it may be planted out to flower, and may be removed in June when the flowers are over.

STENA'CTIS. (From *stenos*, narrow, and *aktin*, a sunbeam; the rays of the expanded blossoms. Nat. ord., *Compositæ* [Asteraceæ]. Linn., 19-*Syngenesia* 2-*Superflua*.)

Hardy herbaceous. Seeds, which, if sown in a slight hotbed in March, will produce plants to bloom the same season; division of the root in spring.

S. heterophylla (various-leaved). 1. White. July. N. Amer. 1640.

— *inulodes* (inula-like). 1. Red. August. Nepal.

— *speciosa* (showy). 2. Purple. July. California. 1831.

— *strigosa* (short-bristled). 1. White. July. N. Amer. 1816.

STENA'THERA. (From *stenos*, narrow, and *anthera*, an anther; the stamens broader than the anthers, which are narrower in proportion. Nat. ord., *Eparcids* [Epacridaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*.)

Greenhouse New Holland evergreens. Cuttings of young, short shoots, a little firm at their base, in sand, under a bell-glass, and placed in a cold frame in May; sandy, fibry peat, with enough of charcoal and broken pots to keep the soil open. Winter temp., 40° to 45°.

S. ciliata (hair-fringed). Red. April.

— *pinifolia* (pine-leaved). 6. Scarlet. June. 1811.

STE'NIA. (From *stenos*, narrow; the pollen masses. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-*Gynandria* 1-*Monandria*. Allied to *Spiranthes*.)

Stove orchid, grown on blocks. See ORCHIDS.

S. pallida (pale-flowered). 4. Yellow. August. Demerara. 1837.

STENOCHYLUS. (From *stenos*, narrow, and *cheilos*, a lip; the narrow lip of the flower. Nat. ord., *Myoporads* [Myoporaceæ]. Linn., 14-*Didynamia* 2-*Angiospermia*.)

Greenhouse evergreens, from New Holland. Cuttings of young shoots in sand, under a bell-glass, in April or May; sandy loam and a little fibry peat. Winter temp., 40° to 45°.

S. glaber (smooth-leaved). 2. Red. 1803.

S. longifolius (long-leaved). 4. Scarlet. April. 1825.
— *maculatus* (spotted). 3. Scarlet. April. 1820.
— *viscosus* (clammy). 2. Yellow. October. 1844.

STENOCHLE'NA. (From *stenos*, narrow, and *chlaina*, a cloak; the covering of the spore-cases. Nat. ord., *Ferns* [Polypodiaceæ]. Linn., 24-*Cryptogamia* 1-*Filices*.)

Stove, brown-spored Ferns. See FERNS.

S. heteromorphia (various-formed). April. Australia.

— *limonifolia* (limonia-leaved). May. E. Ind.

— *longifolia* (long-leaved). 2. June. W. Ind. 1810.

— *scandens* (climbing). 30. July. E. Ind. 1841.

— *sorbifolia* (service-leaved). July. W. Ind. 1793.

— *spondicifolia* (hog-plum-leaved). June. E. Ind.

— *triquetra* (three-sided). July. E. Ind.

STENOCO'RYNE. (From *stenos*, narrow, and *koryne*, a club. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-*Gynandria* 1-*Monandria*.)

Stove orchid, grown in a basket. See ORCHIDS.

S. longicornis (long-horned). Orange-spotted. Demerara. 1843.

STENOME'SSON. (From *stenos*, narrow, and *messon*, the middle; the flowers contracted in the middle. Nat. ord., *Amaryllids* [Amaryllidaceæ]. Linn., 6-*Hexandria* 1-*Monogynia*. Allied to *Coburgia*.)

Pretty frame or half-hardy bulbs, requiring complete rest in winter; "sandy soil, shade, and plenty of moisture in summer." They flower before the leaves rise, and are easily increased from offset-bulbs in spring; sandy loam and fibry peat.

S. aurantiacum (orange - coloured - flowered).

Orange. May. Quito. 1843.

— *coccineum* (scarlet). Scarlet. May.

— *croceum* (saffron-coloured). 1. Copper. May. 1820.

— *curvidens* (bent-toothed). Yellow. May. Peru. 1842.

— *flavum* (yellow). Yellow. May. Peru. 1825.

— *Hartwegii* (Hartweg's). 1. Orange. March. Quito. 1844.

— *latifolium* (broad-leaved). 1. Yellow. March. Lima. 1837.

— *vitellinum* (yolk-of-egg). 1. Yellow. April. Lima. 1842.

STENORHY'NCHUS. (From *stenos*, narrow, and *rhynchus*, a beak; shape of the column. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-*Gynandria* 1-*Monandria*. Allied to *Spiranthes*.)

Stove orchids, grown in pots. See ORCHIDS.

S. aphylla (leafless). 1. Brown, red, green. June. Trinidad. 1826.

— *cinnabarinus* (cinnabar-coloured). Orange, red, yellow. June. Mexico. 1846.

— *plantaginea* (plantain-leaved). Red. June. Nepal. 1824.

STENO'STOMUM. (From *stenos*, narrow, and *stoma*, a mouth; referring to the flower. Nat. ord., *Cinchonads* [Cinchonaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Guettarda*.)

Stove, white-flowered, West Indian, evergreen shrubs. Cuttings of half-ripened shoots in sand, under a glass, in a sweet bottom-heat; peat and loam. Winter temp., 50° to 55°; summer, 60° to 80°.

S. lucidum (shining). May. 1818.

— *tomentosum* (downy). May. 1823.

STEPHANO'TIS. (From *stephanos*, a crown, and *ototis*, eared; the ear-like processes on the crown of the stamens. Nat. ord., *Asclepiads* [*Asclepiadaceæ*]. Linn., 5-*Pentandria* 1-*Monogynia*.)

Stove, white-flowered, evergreen twiners. Cuttings of the points of shoots, but best by small, stiff side-shoots, in sand, under a bell-glass, and plunged in bottom-heat; fibry loam and fibry peat, with a little silver sand and dried leaf-mould. Winter temp., 45° to 55°, and rather dry; summer, 60° to 85°, and plenty of moisture when growing. Would answer, probably, in a warm conservatory when once it reached the top of the roof.

S. floribunda (copious-flowered). 20. May. Madagascar. 1839.

— *Thouarsii* (Thouars's). May. E. Ind. 1842.

STERCULIA. (Named after *Stercus*, a heathen god. Nat. ord., *Sterculiads* [*Sterculiaceæ*]. Linn., 21-*Monæcia* 10-*Decandria*.)

Stove evergreens. Cuttings of ripe shoots in sand, under a bell-glass, in moist bottom-heat; fibry loam and peat. Winter temp., 45° to 55°; summer, 60° to 80°. *Tragacantha* produces the gum of that name. *Platanifolia* stood for years in the open air at Chelsea, and it is likely that many of the East Indian and New Holland species would thrive with greenhouse treatment.

S. Bala'nghas (Balanghas). 20. Purple. August. E. Ind. 1787.

— *coccinea* (scarlet-fruited). 20. E. Ind. 1817.

— *colorata* (coloured). 30. Scarlet. E. Ind. 1818.

— *grandiflora* (large-flowered). 6. E. Ind. 1820.

— *helicteres* (helicteres-like). 8. Yellow, purple. Carthage. 1820.

— *macrophylla* (large-leaved). Yellow. July. E. Ind. 1822.

— *notilis* (noble). 20. Pale buff. E. Ind. 1787.

— *pubescens* (downy). 20. White. Guinea. 1793.

— *tragacantha* (tragacanth). 40. Red, brown. May. Sierra Leone. 1793.

STERILE. See **BARREN.**

STERNBERGIA. (Named after Count Sternberg, a German botanist. Nat. ord., *Amaryllids* [*Amaryllidaceæ*]. Linn., 6-*Hexandria* 1-*Monogynia*. Allied to *Oporanthus*, or *Amaryllis lutea* of the gardens.)

Hardy autumnal-flowering bulbs, with one yellow flower on a stalk, open before the leaves rise; offsets; good, sandy loam and leaf-mould.

S. Clusiana (Clusius's). ½. Constantinople.

— *colchiciflora* (colchicum-flowered). ½. Hungary. 1816.

— *exigua* (small). ½. N. Africa. 1820.

STEVIA. (Named after P. J. Esteve, a Spanish botanist. Nat. ord., *Compositæ* [*Asteraceæ*]. Linn., 19-*Syngenesia* 1-*Æqualis*.)

Greenhouse herbaceous perennials, from Mexico, where not otherwise mentioned. They all bloom

in August. Seeds and division in spring; sandy, loamy soil. The protection of a cold pit in winter. *S. adenophora* (gland-bearing). 2. White. Chili. 1822.

— *angustifolia* (narrow-leaved). 1½. Pink. 1823.

— *breviurata* (short-awned). 3. Rose. July. Tucuman. 1836.

— *Eupatoria* (Eupatoria). 2. Pink. 1798.

— *fascicularis* (close-headed). 1. White. September. 1830.

— *fastigiata* (peaked). 1½. White. New Spain. 1826.

— *hyssopifolia* (hyssop-leaved). 1½. Pink.

— *incanescens* (hoary). 1. White. New Spain. 1827.

— *ivaefolia* (iva-leaved). 2. White. 1816.

— *lanceolata* (spear-head-leaved). 1. Purple. 1822.

— *latiflora* (loose-flowered). Purple.

— *lucida* (shining). 2. Pink. New Spain. 1824.

— *microphylla* (small-leaved). 2. Blush. September. 1828.

— *molliis* (soft). White. 1834.

— *Monardifolia* (Monarda-leaved). 1½. Violet. 1826.

— *Nepetifolia* (Nepeta-leaved). 1½. White. 1824.

— *ovata* (egg-leaved). 2. White. 1816.

— *paniculata* (panicked). 1½. White. New Spain. 1824.

— *piloisa* (shaggy). 1½. Pink. 1820.

— *pubescens* (downy). 1½. Purple. 1823.

— *purpurea* (purple). 1½. Purple. 1812.

— *rhombifolia* (diamond-leaved). 1½. White. 1827.

— *salicifolia* (willow-leaved). 1½. Pink. 1803.

— *salviaefolia* (sage-leaved). 1½. White. 1827.

— *serrata* (saw-leaved). 1½. Flesh. 1799.

— *suaveolens* (sweet-smelling). 1½. White. New Spain. 1823.

— *subulato-aristata* (slightly-eight-awned). White. Peru. 1824.

— *subpubescens* (slightly-downy). 2. Pink. New Spain. 1820.

— *ternifolia* (three-leaved). 1½. White. 1824.

— *tomentosa* (woolly). 1½. Violet. 1824.

— *trachelioides* (trachelium-like). 3. Purple. 1839.

— *trifida* (three-cleft). 1½. White. New Spain. 1827.

— *violacea* (violet-coloured). 3. Violet. 1829.

— *viscosa* (clammy). Purple. 1821.

STIGMAPHYLLON. (From *stigma*, the female organ, and *phyllon*, a leaf; leafy-like stigma. Nat. ord., *Malpighiads* [*Malpighiaceæ*]. Linn., 10-*Decandria* 3-*Trigynia*. Allied to *Banisteria*.)

Stove, yellow-flowered plants. Cuttings of ripened shoots in sand, under a glass, in bottom-heat; peat and loam. Winter temp., 45° to 55°; summer, 60° to 80°.

S. aristatum (awned-leaved). 20. July. Brazil. 1832. Twiner.

— *auriculatum* (eared-leaved). 10. Brazil. 1820. Twiner.

— *ciliatum* (hair-fringed-leaved). May. Brazil. 1796. Herbaceous.

— *heterophyllum* (various-leaved). 10. December. Buenos Ayres. 1842. Climber.

— *jatrophaefolium* (jatropha-leaved). 3. May. Uruguay. 1841. Twiner.

— *mucronatum* (spine-pointed). 10. September. Mexico. 1844. Twiner.

STILLINGIA. (Named after Dr. B. Stillingfleet, an English botanist. Nat. ord., *Spurge-worts* [*Euphorbiaceæ*]. Linn., 21-*Monæcia* 10-*Decandria*. Allied to *Omalanthus*.)

Stove, yellow-flowered evergreens. Cuttings in sand, in heat; sandy, fibry loam, a little peat and charcoal, and also a little brick-rubbish. Winter temp., 50°; summer, 60° to 75°.

S. popu'inea (poplar-like). 14. Ceylon. 1823.
— *sebi'fera* (tallow-bearing. Tallow-tree). 10. China. 1703.

STINKING GLADWYN. *I'ris fœtidi'ssima*.

STI'PA. Feather Grass. (From *stipe*, feathery, or silky. Nat. ord., *Grasses* [Gramineæ]. Linn., 3-Triandria 2-Digynia.)

Sti'pa penna'ta is the common feather-grass of the seed-shops. All but *hu'milis* hardy herbaceous perennials; division and seeds in spring; common soil.

S. Alta'ica (Altaic). July. Altai. 1836.
— *capilla'ta* (long-haired). 2. July. Europe. 1815.
— *confe'rtu* (crowded). 2. July. 1819.
— *gigant'e'a* (giant). 3. July. Spain. 1823.
— *hu'milis* (lowly). ‡. July. S. Amer. 1802.
— *ju'ncea* (rush-leaved). 3. July. France. 1772.
— *penna'ta* (feathered). 2. July. Britain.

STITCHWORT. *Stella'ria*.

STOBE'A. (Named after *Dr. Stobæus*, a Swede. Nat. ord., *Composites* [Asteraceæ]. Linn., 19-Syngenesia 1-Æqualis. Allied to *Gazania*.)

Greenhouse, yellow-flowered evergreens; from the Cape of Good Hope. Cuttings of the points of shoots, when growing, in sand, under a bell-glass; sandy loam and fibry peat. Winter temp., 40° to 48°.

S. atractyl'oï'des (atractylis-like). July. 1823.
— *pinn'a'ta* (leafleted). 2. June. 1812.

STOCK AND STOCK-GILLIFLOWER. See MATHI'OLA.

STOCKS are young trees or shrubs raised from seed, suckers, layers, and cuttings, for the reception of buds or grafts from other trees or shrubs of a kindred species.

The old gardener's maxim, "the graft overruleth the stock quite," is consonant with truth, though it is to be taken with some reservation. The graft prevails, and retains its qualities; yet the stock has the power of influencing its productiveness, as well as the quality of the fruit. Thus, a tree having an expansive foliage and robust growth, indicative of large sap vessels and vigorous circulation, should never be grafted upon a stock oppositely characterised, for the supply of sap will not be sufficient. Illustrations are afforded by the codlin never succeeding so well on a crab, nor a bigarreau on a wild cherry, as they do on freer-growing stocks.

The habit of the stock, also, is of much more importance than is usually considered. If it grows more rapidly, or has larger sap vessels than the scion or bud, an enlargement occurs below these; but if they grow more rapidly than the stock,

an enlargement takes place just above the point of union. In either case, the tree is usually rendered temporarily more prolific; but in the case where the stock grows most slowly, the productiveness is often of very short duration, the supply of sap annually becoming less and less sufficient to sustain the enlarged production of blossom and leaves. This very frequently occurs to the freer-growing cherries when inserted upon the wild species, and still more frequently to the peach and apricot upon stocks of the slow-growing plums. It is highly important, therefore, to employ stocks, the growth of which is as nearly similar as may be to the parent of the buds or scion.

The earlier vegetation of the stock than of the bud or graft is also important; for, if the latter is earliest in development, it is apt to be exhausted and die before the flow of sap has enabled granulation and union between the faces of the wounds at the junction to occur.

Stocks for general use may be used for grafting or budding, when from the size of a good goose-quill to half an inch, or not more than an inch in the part where the graft or bud is to be inserted. Stocks of two or three inches or more in diameter, either the stems or branches, are also occasionally grafted or budded with success, but are not proper for general practice. *Crab Stocks* are all such as are raised from seeds, &c., of any wild ungrafted trees, particularly if of the fruit-tree kind, such as the wild crab apple of the woods and hedges, wild pears, plums, wild cherry, and such other trees as have not been grafted or budded. *Free Stocks* are such as are raised from the seed, layers, &c., of any of the cultivated varieties of fruit-trees and others. *Paradise* or *Doucin* stocks are raised from layers or suckers from a dwarf variety of apple, the roots of which are produced nearer to the surface than those from crab stocks. The *French Paradise* stock is distinguished from all others by its very dwarf growth, its clear chestnut-coloured shoots, and small fibrous roots, which spread near the surface. The *English Paradise* may be either referred to as the Doucin of the French or the Dutch Paradise; for, in English nurseries, trees propagated on either are said to be on paradise stocks. Of these two the Doucin has the darkest shoots. Their effects on the growth of the trees worked upon

them are similar, being intermediate between the very dwarf habit induced by the French Paradise, and the luxuriant growth induced by the crab or free stocks. See GRAFTING and BUDDING.

STOE'BE. (From *stibas*, a bed of leaves; those of *Æthio'pica* so used. Nat. ord., *Composites* [*Asteracæ*]. Linn., 19-*Syngenesia* 5-*Segregata*.)

Greenhouse evergreens, from the Cape of Good Hope. Cuttings of young shoots in sand, under a bell-glass, in May; friary, sandy loam and peat. Winter temp., 40° to 45°.

S. Æthio'pica (Ethiopian). 2. August. 1759.
— *cine'ra* (grey). 2. August. 1784.
— *ericoi'des* (heath-like). 2. August. 1816.
— *reflexa* (bent-back). 2. August. 1816.

STOKE'SIA. (Named after Dr. Stokes, an English botanist. Nat. ord., *Composites* [*Asteracæ*]. Linn., 19-*Syngenesia* 1-*Æqualis*.)

Half-hardy evergreen. Seeds, or division of the plant in spring; sandy loam and a little leaf-mould; requires a little protection in winter.

S. cyan'ea (azure). 2. Blue. August. Carolina. 1766.

STONECROP. *Se'dum*.

STONE PINE. *Pinus pi'nea*.

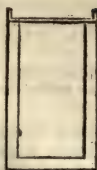
STOPPING is pinching or nipping off the extremity of a branch, to prevent its further extension in length. It is frequently done, either to promote its robustness or the production of laterals.

STORAX. *Sty'rax*.

STORK'S BILL. *Pelargo'nium*

STOVES, or HOTHOUSES, are glazed structures, differing from greenhouses chiefly in requiring a higher temperature to be sustained within them, either for forcing fruits or for growing plants from tropical climates. Nearly all that is stated relative to the *greenhouse*, *hotbed*, and *pit* under the articles MELON and RENDLE'S TANK SYSTEM is applicable to the stove. In addition, relative to *glazing*, if lapping be permitted, its width should not exceed one-eighth of an inch, and the panes should be acutely rhomboid, to throw the condensed vapour down to the lower corner, and induce it to trickle down the bars instead of dropping. It is very doubtful whether it reduces the amount of moisture taken between the laps by capillary attraction.

Flues are best built of bricks set on their edges, and the top formed of a shallow iron trough for the purpose of



holding water, and thus keeping the air moist as required. At night, for retaining heat, pantiles may be placed along within the trough; the best form is the annexed.

Hot water in a tank is superior to the same source of heat in pipes, because it is not liable to freeze; and it is preferable to steam, because its heating power continues until the whole mass of water is cooled down to the temperature of the house, whereas steam ceases to be generated as a source of heat the moment the temperature falls below 212°. If steam be employed, Mr. Tredgold has given the following rules for calculating the surface of pipe, the size of the boiler, the quantity of fuel, and the quantity of ventilation required for a house thirty feet long and twelve feet wide, with the glass roof eight feet, length of the rafters fourteen feet, and height of the back wall fifteen feet. The surface of glass in this house will be seven hundred and twenty feet superficial, viz., five hundred and forty feet in the front and roof, and one hundred and eighty feet in the ends. Now, half the vertical height, seven feet six inches, multiplied by the length in feet, and added to one and a half times the area of glass in feet, is equal to the cubic feet of air to be warmed in each minute when there are no double doors. That is, $7.5 \times 30 + 1\frac{1}{2} \times 720 = 1305$ cubic feet. But in a house with wooden bars and rafters, about one-tenth of this space will be occupied with wood-work, which is so slow a conductor of heat that it will not suffer a sensible quantity to escape; therefore 130 feet may be deducted, leaving the quantity to be warmed per minute = 1175 cubic feet.

To ascertain the surface of pipe required to warm any given quantity of air, multiply the cubic feet of air to be heated per minute by the difference between the temperature the house is to be kept at, and that of the external air in degrees of Fahrenheit's thermometer, and divide the product by 2.1, the difference between 200, which is the temperature of the steam pipes, and the temperature of the house; the quotient will be the surface of cast-iron pipe required.

Now, in the house, the dimensions of which are above given, if the lowest



temperature in the night be fixed at 50°, and 10° are allowed for winds, and the external air is supposed to be at zero or 0 of Fahrenheit, then 1175 multiplied by 60°, and the product divided by 2.1, the difference between 200 and 60 will give us the quotient 236—to the surface of pipe required. Now, the house being thirty feet long, five pipes of that length, and five inches in diameter, will be about the proper quantity.

If hot water be employed instead of steam, the following proportions and information, obtained from Mr. Rendle, may be adopted confidently as guides:—In a span-roof propagating house, forty feet long, thirteen feet broad, seven feet high in the centre, and four feet high at the two fronts, having a superficial surface of glass amounting to 538 square feet, Mr. Rendle has a tank eighty-three feet long, running round three sides of the house, four feet wide and about eight inches deep, and consequently capable of containing nearly 300 cubic feet of hot water, though only half that quantity is used. This is closely approaching to the size pointed out, according to Mr. Tredgold's formula. The mean temperature of a hot-water tank will never be much above 100°, so that, for the sized house mentioned by that skilful engineer, the divisor must be 2.1 times the difference between 100° and 60°, which gives as the quotient 335 cubic feet.

The tank in Mr. Rendle's propagating-house is built lined with Roman cement, and if the temperature at the time of lighting the fire be 90°, the temperature of the atmosphere of the house 67°, and the temperature out of doors 50°, the quantity of small coal or breeze required to raise the temperature of the water to 125° is 28 pounds. In twelve hours the water cools, after the fire has been extinguished, from 125° to 93°.

When steam is employed, the space for steam in the boiler is easily found by multiplying the length of the pipe in feet by the quantity of steam in a foot in length of the pipe.

In the above-noticed house, the length of pipe five inches in diameter is 150 feet; and these multiplied by 1.363=20.5 cubic feet of steam, and as the pipe will condense the steam of about one cubic foot and one-third of water per hour, therefore the boiler should be capable of evaporating $1\frac{1}{3}$ cubic feet of water per hour,

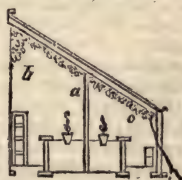
to allow for unavoidable loss. In the extreme cases of the thermometer being at zero, the consumption of coals to keep up this evaporation will be 12 $\frac{1}{2}$ pounds per hour.

Interior diameter of pipe in inches.	Decimal parts of a cubic foot of steam in each foot of pipe.
1	0.0545
1 $\frac{1}{2}$	0.1225
2	0.2185
2 $\frac{1}{2}$	0.34
3	0.49
4	0.873
5	1.063
6	1.964
7	2.67
8	3.49
9	4.42
10	5.45

These calculations are all founded upon the supposition that the condensed water is returned to the boiler whilst hot; but if this cannot be effected, then one-twelfth more fuel will be required. The boiler for the supply either of steam or hot water should be covered with the best available non-conductor of heat, and this is either charcoal or sand.

A case of brickwork, with pulverized charcoal between this and the boiler, is to be preferred to any other. A boiler having a surface of seventy feet exposed to the air, in a temperature of 32°, requires an extra bushel of coals to be consumed per day, to compensate for the heat radiated and conducted from that surface; and the smaller the boiler, the greater is the proportionate waste. The surface of the pipes should be painted black, because a surface of this colour gives out more heat in a given time than any other.

Bark or Moist Stove.—Mr. Loudon gives the following design and description



of a moist stove, warmed on the old plan of deriving heat by the combined agency of bark and flues. Instead of a stage in the centre it has a pit, which may be from two and a half to four feet deep, according as bark or leaves are to be used, the latter material requiring the greatest depth. It is commonly surrounded by a thin brick

wall; but planks of stone, or plates of slate or cast iron, are to be preferred. The roof, when necessary, may be supported by iron columns from the middle of the pit, *a*. Shelves may be placed against the back wall, *b*, and occasionally a narrow-leaved creeper run up the roof, *c*. We may add, that houses of this description are generally placed east and west against walls, on account of the shelter thereby obtained during winter, when a high degree of heat is kept up within, while the cold is excessive without.

STRANVE'SIA. (Named after the *Hon. W. F. Strangways, F.R.S.* Nat. ord., *Appelworts* [Pomacææ]. Linn., 12-*Icosandria* 2-*Di-pentagynia*. Allied to *Crægus*.)

A beautiful and nearly evergreen shrub, but not quite hardy, except in the south of England. Grafting on the thorn; in cold places would like a little protection in winter.

S. glaucescens (grey-leaved). 20. White. June. Nepal. 1828.

STRATIO'ES. Water Soldier. (From *stratos*, an army; sword-like leaves. Nat. ord., *Hydrocharads* [Hydrocharidacææ]. Linn., 22-*Diæcia* 10-*Dodecandria*.)

Hardy aquatics. Useful to plant in ponds, where it will soon cover a large space. Seeds and divisions; ponds and lakes.

S. alismoides (plantain-like). July. E. Ind. 1806. — *aloides* (aloe-like). 2. White. June. England.

STRAVA'DIUM. (From the native name in Malabar. Nat. ord., *Barringtoniads* [Barringtoniacææ]. Linn., 16-*Monadelphica* 8-*Polyandria*.)

Stove evergreen trees. Cuttings of ripened shoots in sand, under a bell-glass, and in a good, moist bottom-heat; fibry loam and peat, with a little charcoal and silver sand. Winter temp., 60° to 65°; summer, 65° to 90°.

S. acutangulum (sharp-angled). 20. Purple. E. Ind. 1822.

— *racemosum* (racemed). 20. White. W. Ind. — *rubrum* (red). Red. E. Ind. 1822.

STRAWBERRY. *Fragaria*.

Superior kinds.—No. 1, Black Prince; 2, Keen's Seedling; 3, British Queen; 4, Elton; 5, Old Pine; 6, Alpine; 7, Kitley's Goliath; 8, Eliza; 9, Carolina superba. For early heavy crops none can exceed the Keen's; for size, the British Queen and Goliath; for earliness, the Black Prince probably takes the lead; for very late purposes, the Elton and Alpines; and for forcing, the Keen's and the British Queen.

Soil.—A good loam of some depth is best adapted to high culture; for although strawberry walls are found to be highly conducive to flavour, yet they will not succeed well in such situations, unless a

special provision of this kind be made for them. Therefore, loose and sandy soils must be mixed with marls or clays, and clayey soils must be rendered open by applying sand, road-scrapings, cinder-ashes (fine), burnt or charred material, &c. Boggy or peaty soils will require consolidation by burning, or the application of sound soil, and by thorough draining, if wet.

Propagation: by Runners and Seed.—Their propagation by runners is well known. Seed-sowing is resorted to for raising new varieties, and for heightening the culture of the Alpine class, which is, by most cultivators, treated as an annual.

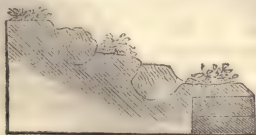
Culture during the Growing Period.—Very little is necessary besides keeping them clear of weeds, and trimming all those runners away which are not required for future stock. All operations connected with root-culture should be carried out during the rest period. At the end of May the runners will begin to ramble freely, and at this time a very general spring-dressing should take place. This consists in hoeing and raking the ground thoroughly, choosing a dry period for the operation, in order that every weed may be destroyed; at the same time trimming away all the wires or strings on which the runners are produced. The next proceeding will be to place clean straw, grass-mowings, or tan beneath the trusses of fruit; this process requires a little nicety of handling. When the bloom trusses make their appearance, the next great point is to see that the plants never suffer from drought from this period to the moment they commence ripening.

Culture during the Rest Period.—We date our rest season from the period at which the last fruit is gathered, or soon after, say the end of August. At this period it will be found, that in spite of the trimming the plants received in May, a profusion of runners will have been produced, the rambling foliage from which will obstruct the light from the older and principal leaves, which have, from this time forward, the important office of preparing for the formation of the ensuing year's blossom. The waste runners should therefore be trimmed away as soon as possible, for they also exhaust the soil by their roots. In cutting away these runners, great care must be exercised in preserving all the true leaves, which must by no means be cut.

No further trimming need be practised until the following March, in the early part of which all the decayed and injured foliage may be cut away. The rows being three feet apart, at the end of October, one foot in the centre only is to be dug, thus leaving the plants one foot of roots on each side entirely undisturbed. Introduce some decayed manure annually in this centre, and the small amount of loss of root is more than compensated by the volume of new white fibres which, by the month of May following, have fully invested the new ground. The dung or vegetable matter should be somewhat fresh; such is preferable to rotten manure.

Making new Plantations.—Trenching should be had recourse to, going as deep as the good soil will permit, placing the manure necessary principally between the two spits. If the soil be shallow, of course the manure will be dug down with a single spit. If good runners can be obtained early in July, and carefully cultivated, they may be expected to bear a respectable crop the following summer. From those planted in February, of course, little can be expected. It is by far the best to keep a little nursery for runners in a very open situation, and the plants a long way apart.

Strawberry Walls or Banks.—These have been highly recommended, and are, doubtless, very useful, as heightening flavour. They have, however, never become very general, owing to their being rather expensive in constructing. A strawberry wall, in the direction of east and west, would be a useful adjunct in high gardening if properly managed. On the south side plant the Black Prince and the Keen's Seedling; and on the north side the Elton. The former would ripen a fortnight earlier than ordinary ones, and the latter continue bearing until October. These walls may be built of any kind of material which will maintain its position, and should be as near to an angle of 45° as can be approached. They may be thus constructed—



Strawberry Forcing.—One principal

point here is to obtain very early runners, which is generally effected by laying the earliest in small pots, in a sound compost. These, when full of roots, are repotted into larger ones; and the whole business henceforth is to give them kindly cultivation, as to regular waterings, &c., and to keep them in an open situation. By the end of September they will possess stout buds, and must be plunged up to their rims for the winter. Forcing must be commenced very gently, with plenty of atmospheric moisture,—say, commence with the temperature at 55°, and rise gradually, by the time the leaf is thoroughly developed, to 60°, and the less advance that is made beyond this the better, except in sunny weather. They love to be near the glass, and to have abundance of air.

Culture of the Alpines.—Sow seed from choice fruit at the end of January in gentle heat, and prick the seedlings out into boxes, still under glass, in rich soil. Towards the end of April, the plants, having been hardened off, may be planted out finally; and an elevated bed, in a sunny situation, should be chosen. They may be planted in double rows, half a yard apart in the row, and the rows two feet apart. The soil should be a rich loam; and when they are fruiting, some slates or tiles may be placed beneath them, as the autumn rains are apt to rot them. They should be liberally watered during dry weather.

STRAWBERRY-BLITE. *Bli'tum*.

STRAWBERRY-SPINACH. *Blit'tum*.

STRAWBERRY-TREE. *A'rbutus*.

STRELI'TZIA. (Named after Charlotte, queen to George III., of the house of Mecklenburgh-Strelitz. Nat. ord., *Musads* [Musaceæ]. Linn., 5 *Pentandria* 1-*Monogynia*.)

Stove, yellow-flowered, herbaceous perennials, from the Cape of Good Hope. By seeds in a good, moist heat, in spring; generally by suckers and dividing the plant; fibry loam and a little peat. Winter temp., 45° to 55°; summer, 60 to 80°.

S. angustifolia (narrow-leaved). 6. May. 1778.

—*angusta* (grand). 18. White. March. 1791.

—*furinosa* (meaty-stalked). 5. February. 1795.

—*humilis* (humble). 6. May.

—*ju'ncea* (rush-leaved). 6. May.

—*ovata* (egg-leaved). 8. March. 1777.

—*parvifolia* (small-leaved). 6. June. 1796.

—*regina* (queen's). 8. April. 1773.

STREPTANTHERA. This genus is united to *Gladiolus*; and the following are now—

G. cu'prea (copper-coloured). 3. Copper. June.

Cape of Good Hope. 1825.

—*e'legans* (elegant). 4. White, blue. May. Cape of Good Hope. 1827.

STREPTOCARPUS. (From *streptos*, twisted, and *carpos*, a fruit; the long seed-pod twisted. Nat. ord., *Gesneriads* [Gesneriaceæ]. Linn., 2-*Diandria* 1-*Monogynia*.)

Greenhouse herbaceous perennials. By seeds in a gentle hotbed, in spring; also by dividing the plant; light, rich, sandy loam. Winter temp., 40° to 50°.

S. Gardeni (Capt. Garden's). 3. Blue. July. Natal. 1854.

— *polyanthus* (many-flowered). 1. Natal. Purple. 1853.

— *Rexii* (Rex's). 3. Blue. June. Cape of Good Hope. 1824.

STREPTOPUS. (From *streptos*, twisted, and *pous*, a foot; flower-stalks twisted. Nat. ord., *Melanths* [Melanthaceæ]. Linn., 6-*Hexandria* 1-*Monogynia*. Allied to *Uvularia*.)

Hardy herbaceous perennials. Seeds or divisions in spring; any good garden-soil.

S. amplexifolius (leaf-stem-clasping). 1. White. May. Hungary. 1752.

— *distortus* (distorted). 1. Yellow. May. N. Amer. 1758.

— *lanuginosus* (woolly). 1½. Yellow, green. June. N. Amer. 1812.

— *roseus* (rosy). 1½. Pink. June. N. Amer. 1806.

— *simplex* (simple). 1½. June. Nepaul. 1822.

STRIKING. The process of causing cuttings to emit roots.

STROBILANTHES. (From *strobilos*, a pine-cone, and *anthos*, a flower; resemblance of the head of flower. Nat. ord., *Acanthads* [Acanthaceæ]. Linn., 14-*Didynamia* 2-*Angiospermia*. Allied to *Ruellia*.)

Stove evergreen shrubs. Cuttings any time during summer in sandy soil, under a hand-light, in heat; fibry loam and sandy peat. Winter temp., 48° to 55°; summer, 60° to 80°.

S. callosus (thick-barked). Blue. May. E. Ind. 1840.

— *lactatus* (milky-leaved). 1. Pale lilac. September. E. Ind. 1847.

— *maculatus* (spotted-leaved). 1½. Pale lilac. September. 1846.

— *Sabiniwnus* (Sabine's). 4. Blue, purple. March. Nepaul. 1826.

— *scabra* (rough). 4. Yellow. May. E. Ind. 1836.

— *seasilis* (stalkless). 4. Blue. April. Bombay. 1833.

STROPHANTHUS. (From *strophos*, twisted, and *anthos*, a flower; divisions of petals twisted. Nat. ord., *Dogbanes* [Apocynaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Nerium*.)

Stove evergreen shrubs. Cuttings of half-ripened shoots in sand, under a glass, in heat, in spring; fibry loam and sandy peat. Winter temp., 50° to 55°; summer, 60° to 85°.

S. chinensis (Chinese). Yellow. June. China. 1816.

— *dichotomus* (forked). 3. Rosy. June. E. Ind. 1816.

— *divergens* (spreading). 3. Yellow. February. China. 1816.

— *sarmentosus* (trailing). 6. Red. June. Sierra Leone. 1824.

STRUMARIA. (From *struma*, a tubercle;

the style is enlarged at the bottom. Nat. ord., *Amaryllids* [Amaryllidaceæ]. Linn., 6-*Hexandria* 1-*Monogynia*. Allied to *Nerine* and *Hessea*.)

Bulbs, from the Cape of Good Hope. For culture, see *NERINE*.

S. angustifolia (narrow-leaved). 3. Pink. April. 1795.

— *crispata* (curled-flowered). 3. Pink. June. 1780.

— *filifolia* (thread-leaved). 3. White. November. 1774.

— *gemma'ta* (jewel-flowered). 1. Pale yellow. August. 1812.

— *linguæfolia* (tongue-leaved). 3. White. April.

— *rubella* (pale red). 3. Pink. May. 1795.

— *spiralis* (spiral). 3. Pink. July. 1774.

— *stellaris* (starry). 3. Pink. October. 1794.

— *truncata* (abrupt-ended-leaved). 3. White. April. 1795.

— *undulata* (wavy-flowered). 3. White. May. 1820.

STRUTHIOA. (From *strouthion*, a little sparrow; resemblance of seeds to a beak. Nat. ord., *Daphnads* [Thymelaceæ]. Linn., 4-*Tetrandria* 1-*Monogynia*. Allied to *Pimelia*.)

Greenhouse evergreens, from the Cape of Good Hope. Cuttings of the points of shoots, two or three inches in length, in sand, under a bell-glass, in May; sandy, fibry peat and a little charcoal. Winter temp., 40° to 47°.

S. angustifolia (narrow-leaved). 3. Yellow. July. 1816.

— *ciliata* (hair-fringed). 2. White. June. 1779.

— *erecta* (upright). 1½. White. June. 1798.

— *glabra* (smooth). 2. Yellow. June. 1820.

— *imbricata* (tiled-leaved). 2. Yellow. June. 1794.

— *ineana* (hoary). 2. White. August. 1817.

— *juniperina* (juniper-leaved). 2. White. June. 1758.

— *lateriflora* (side-flowered). 2. Yellow. July. 1819.

— *longiflora* (long-flowered). 2. Yellow. July. 1823.

— *lucens* (shining). 2. Yellow. June. 1817.

— *ovata* (egg-leaved). 2. White. April. 1792.

— *pubescens* (downy). 3. Red. June. 1790.

— *striata* (streaked). 2. Yellow. July. 1820.

— *tomentosa* (woolly-leaved). 2. Yellow. August. 1799.

— *virgata* (twiggy). 2. Red. June. 1779.

STRUTHIOPTERIS. (From *strouthios*, an ostrich, and *pteris*, a fern; resemblance of the leaves, or fronds, to its feathers. Nat. ord., *Ferns* [Polypodiaceæ]. Linn., 24-*Cryptogamia* 1-*Filices*.)

Hardy, brown-spored Ferns. See *FERNs*.

S. Germanica (German). 2. July. Europe. 1760.

— *Pennsylvanica* (Pennsylvanian). 2. August. N. Amer. 1812.

STUARTIA. (Named after John Stuart, Marquis of Bute. Nat. ord., *Theads* [Ternströmiaceæ]. Linn., 16-*Monadelphias* 8-*Polyandria*. Allied to *Gordonia*.)

Hardy, white-flowered, deciduous shrubs, from North America. Generally by layers; moist peat-soil, or deep, moist, sandy loam.

S. ovatum (egg-leaved). 9. July. 1785.

— *Virginica* (Virginian). 10. July. 1843.

STYL'DIUM. (From *stylos*, a column; the stamens and style joined into a column. Nat. ord., *Styleworts* [Stylidiaceæ]. Linn., 20-*Gynandria* 2-*Diandria*.)

All New Holland plants. Herbaceous, by divisions, and by seeds in spring; shrubs, by cuttings of young shoots in sand, under a bell-glass; fibry, sandy loam, and a little peat and vegetable mould. Winter temp., 40° to 45°.

GREENHOUSE EVERGREENS.

S. Brunonia'num (Dr. Brown's). 1. Rose. June. 1841.

— *fasciculat*'um (bundled). ½. Pink. August. 1838.

— *frutic*'osum (shrubby). 1½. Pink. July. 1803.

— *sca*'ndens (climbing). 2. Rose. July. 1803.

GREENHOUSE HERBACEOUS.

S. adna'tum (adhering). ½. Pink. July. 1824.

— *androsa*'ceum (androsace-like). White.

— *bi*'color (two-coloured). White, purple. 1843.

— *canalicul*'atum (channelled-leaved). Yellow. July.

— *caule*'scens (long-stemmed). Pink.

— *caricif*'olium (sedge-leaved). White. July.

— *cilia*'tum (hair-fringed). 1. Yellow. May. 1840.

— *compres*'sum (flattened). Yellow. Purple. July.

— *Drummo*'ndi (Drummond's). 2. Pink. November. 1838.

— *graminif*'olium (grass-leaved). 1. Pink. July. 1803.

— *hirsu*'tum (hairy-scaped). 2. Rose. June. 1830.

— *hi*'spidum (bristly). White. July.

— *ju*'nucum (rush-like). ½. Rose. 1830.

— *leptostu*'chyum (narrow-spiked). White.

— *linea*'re (narrow-leaved). 1. Red. June. 1812.

— *nud*'um (naked-stemmed). White. June. 1840.

— *pilo*'sum (hairy). 1. Pink, white. June. 1841.

— *proli*'ferum (proliferous). Pink. June. 1839.

— *pycnosta*'chyum (dense-spiked). Pink. June. 1843.

— *recu*'rsum (curled-back). ½. Green, purple. May. 1840.

— *saxifrago*'des (saxifrage-like). White. June. 1842.

— *scu*'bridum (rather-rough). White. July. 1841.

— *stria*'tum (channelled). White. May.

— *tenuif*'olium (fine-leaved). 1. Pink. July. 1818.

STYLOCO'RYNE. (From *stylos*, a column, and *koryne*, a club; shape of the style. Nat. ord., *Cinchonads* [Cinchonaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*.)

Stove, white-flowered, East-Indian evergreens. Cuttings of young shoots in sand, under a bell-glass, in heat; fibry, sandy loam and peat. Winter temp., 45° to 55°; summer, 60° to 85°.

S. coria'cea (leathery-leaved). 1828.

— *corymbo*'sa (corymbed). 5. 1759.

— *cymo*'sa (cymed). 1811.

STYPA'NDRA. (From *stype*, tow, and *aner*, an anther; resemblance of the anthers. Nat. ord., *Lilyworts* [Liliaceæ]. Linn., 6-*Hexandria* 1-*Monogynia*. Allied to *Anthericum*.)

Greenhouse New Holland plants. Division of the plant in spring; sandy loam and fibry peat; require the protection of a dry, cold pit in winter.

S. frute'scens (shrubby). 2. Violet. June. 1836.

— *propin*'qua (related). 1. Azure. September. 1833.

STYPHE'LIA. (From *stypelos*, hard;

referring to the wood. Nat. ord., *Epacrids* [Epacridaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*.)

Greenhouse, New Holland evergreens. Cuttings of young shoots in sand, under a bell-glass, in April; sandy, fibry peat, and only a little fibry loam. Winter temp., 38° to 48°.

S. epacrioid'es (epacris-like). 6. Crimson. July. 1823.

— *latifo*'lia (broad-leaved). 4. Pink. June. 1823.

— *trifo*'ra (three-flowered). 6. Pink. July. 1796.

— *tubifo*'ra (tube-flowered). 6. Scarlet. July. 1802.

STY'RAX. *STORAX.* (From the Arabic. Nat. ord., *Storaxworts* [Styracæ]. Linn., 10-*Decandria* 1-*Monogynia*.)

Hardy deciduous, white-flowered shrubs. By imported seeds, and cuttings and layers; light, rich, sandy loam, and a little peat; should be planted against a wall to bloom profusely, and it is well worthy of such protection; next to that a dry, protected situation.

S. grandifo'lium (large-leaved). 6. July. N. Amer. 1765.

— *lævig*'atum (smooth). 4. July. N. Amer. 1765.

— *officin*'ale (shop). 12. July. Levant. 1597.

— *pulveru*'lentum (powdery). 4. June. N. Amer. 1794.

SUCCULENT PLANTS are so characterized on account of their thick juicy leaves. They are formed to exist, says Mr. Fortune, in countries and situations where they are often exposed to intense light and dryness; their skins are thick; they have few evaporating pores; and they have, likewise, few roots to gorge their tissue with food during the rainy season. Therefore, we find the dry, sandy plains of the Cape abounding in *aloes* and *mesembryanthemums*; and the bare volcanic rocks of Mount Etna covered, in many places, with the common *prickly pear*. In Mexico, also, and in many other parts of Central and South America, the extensive race of *cacti*, with their curious un-vegetable-like forms, are at home, and flourish even in those dry and parched seasons when the whole face of nature besides seems withered and destroyed. The natural circumstances in which these plants are found are sure and certain guides in cultivation.

SUCKERS are branches naturally thrown up by a plant from its base, when the onward current of growth of the stem is stopped.

SUFFOCATION is a term employed by Keith and others to describe any stopping of the transpiratory organs of plants, whether it arises from extravasated sap, mosses, fungi, or from a deficient supply of sap.

SUGAR BAKERS' REFUSE. See **ANIMAL MATTERS.**

SUGAR CANE. *Sa'ccharum*.

SUMACH. *Rhus*.

SUN-DEW. *Dro'sera*.

SUNFLOWER. *Helia'nthus*.

H. a'nnuus, Annual Sunflower, is now much cultivated for its oil, and as a food for cattle and poultry.

The earlier the seed can be got into the ground the better, say the beginning of April, as the crop will be ready to harvest the latter part of August, which will be of the greatest importance to growers. The necessary quantity of seed required for an acre depends upon the conditions of the soil, and varies from four pounds to five pounds; but, of course, it is advisable to sow a little more than is actually wanted, to provide against accidents. The seed should be drilled into the ground, and the distance from row to row eighteen inches; the plants to be thinned out to thirty inches from plant to plant, and the number of plants at this distance would be about 14,500 per acre; at eighteen inches from plant to plant, 25,000 per acre; and at twelve inches from plant to plant, 32,000. The produce of this kind of grain, like that of most others, varies considerably, according to the state of the soil, climate, and the cultivation that is employed; but the average quantity of seed is about fifty bushels per acre. This will produce fifty gallons of oil, and of oilcake, 1,500 pounds. The stalks, when burnt for alkali, give ten hundredweight of potash.

SUNFLOWER. *Helianthus*.

SUN-FRUIT. *Helio'ca'rp'us*.

SUN-ROSE. *Helia'nthemum*.

SURFACE GRUBS, or CATERPILLARS, are the larvæ of several species of *Noctua*, or Night Moths. Gardeners thus name them because they attack the roots of the turnip, mangold wurtzel, &c., just at the surface of the soil.

SUTHERLANDIA. (Named after James Sutherland, author of a botanical catalogue. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 17-*Diadelphia* 4-*Decandria*. Allied to *Clianthus*.)

Half-hardy, scarlet-flowered evergreens, from the Cape of Good Hope. Seeds in spring, or cuttings of young shoots in May, under a hand-light; requires protection in hard winters.

S. frutescens (shrubby). 3. June. 1693.

— *canescens* (hoary) June. 1816.

— *microphylla* (small-flowered). 3. June. 1816.

SUWARROW-NUT. *Caryo'car*.

SWAINSONIA. (Named after Isaac Swinson, F.R.S. Nat. ord., *Leguminous*

Plants [Fabaceæ]. Linn., 17-*Diadelphia* 4-*Decandria*. Allied to *Colutea*.)

Greenhouse, New Holland, evergreen shrubs. Seeds in a slight hotbed in April, after being soaked in warm water, or they may be sown when ripe; cuttings of young shoots in sand, under a bell-glass, and kept in a cool frame or pit any time in summer; sandy, fibry loam, and a third of peat. Winter temp., 35° to 45°. They would no doubt succeed against a protected conservative wall.

S. astragalifolia (astragalus-leaved). White. July. 1802.

— *coronillifolia* (coronilla-leaved). 2. Purple. July. 1802.

— *galegifolia* (galega-leaved). 2. Red. July. 1800.

— *albiflora* (white-flowered). 2. White. July. 1826.

— *Greyana* (Capt. Grey's). 2. Pink. July. 1844.

— *Lessertierifolia* (Lessertia-leaved). 2. Purple. July. 1824.

SWALLOWWORT. *Ascle'pias*.

SWAMMERDAMIA. (Named after J. Swammerdam, the naturalist. Nat. ord., *Compositæ* [Asteraceæ]. Linn., 19-*Syngenesia* 2-*Superflua*. Allied to *Podolepis*.)

Half-hardy evergreen. For culture, see *PODOLEPIS*.

S. antennaria (antennaria-like). 3. White. January. Van Diemen's Land.

SWAMP LOCUST-TREE. *Gledit'schia monospe'rma*.

SWAMP POST. *Que'rcus lyrata*.

SWAMP SASSAFRAS or LAUREL. *Magnolia glau'ca*.

SWARTZIA. (Named after Olof Swartz, a German botanist. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 11-*Decandria* 1-*Monogynia*. Allied to *Cassia*.)

Stove evergreen shrub. Cuttings of half-ripened shoots in sand, under a bell-glass, and in bottom-heat, in the beginning of summer; sandy, fibry loam and peat in equal proportions. Winter temp., 50°; summer, 60° to 85°.

S. grandiflora (large-flowered). 6. Yellow. Trinidad. 1821.

SWEDISH BEAM-TREE. *Py'rus interme'dia*.

SWEEPING. (See *BESOM*.) It is best done in calm weather, and early, whilst the dew is strong enough to allay the dust, and keep the light refuse from blowing about.

SWEET BAY. *Lau'rus no'bilis*.

SWEET BRIAR. *Ro'sa rubigino'sa*.

SWEET CALABASH. *Passiflo'ra malifo'rmis*.

SWEET CICELY. See *CHERVIL*.

SWEET FLAG. *A'corus*.

SWEET GALE. *My'rica ga'le*.

SWEET GUM. *Liquida'mbur styraci'flua*.

SWEETIA. These stove evergreen twiners are now united to *Galactia*. They are all purple-flowered.

G. filifo'rmis (thread-shaped). 3. July. S. Amer. 1820.

S. lignosa (woody). 5. St. Domingo. 1824.
 — *longifolia* (long-leaved). 4. S. Amer. 1818.
 SWEET MARJORAM. *Ori'ganum majora'na*.
 SWEET MAUDLIN. *Achille'a agera'tum*.
 SWEET PEA. *La'thyrus odora'tus*.
 SWEET POTATO. *Bata'tas*.
 SWEET SOP. *Ano'na squamo'sa*.
 SWEET SULTAN. *Centaurea moscha'ta*.
 SWEET WILLIAM. *Dia'nthus barba'tus*.
 SWE'RTIA. Felwort. (Named after E. Swert, a Dutch florist. Nat. ord., *Gentianaceae*). Linn., 5-*Pentandria* 2-*Digynia*.)

Hardy plants. Seeds in spring; a marshy, peaty soil.

S. corniculata (small-horned). $\frac{1}{2}$. Pale green. August. Siberia. 1817. Annual.
 — *Michauxia'na* (Michaux's). $\frac{1}{2}$. Green, yellow. July. N. Amer. 1824. Biennial.
 — *perennis* (perennial). 1. Purple. July. England. Perennial.

SWIETE'NIA. Mahogany. (Named after Von Swieten, a Dutch botanist. Nat. ord., *Cedrelaeae* [Cedrelaceae]). Linn., 10-*Decandria* 1-*Monogynia*.)

Stove evergreen trees. Cuttings of half-ripened shoots in sand, under a hand-light, and in bottom-heat; sandy, fibry loam. Winter temp., 50° to 60°; summer, 60° to 85°.

S. febrifuga (fever-conquering). 60. White, yellow. E. Ind. 1796.
 — *mahag'oni* (mahogany). 80. Red, yellow. W. Ind. 1734.

SWORD FERN. *Xipho'pteris*.

SY'AGRUS. (After an ancient poet. Nat. ord., *Palms* [Palmaeae]). Linn., 21-*Diocia* 5-*Pentandria*.)

Stove Palm. Seeds; sandy loam, in a warm, moist plant-stove.

S. coccoides (cocos-like). 20. Brazil. 1824.

SYCAMORE. *A'cer pseu'do-pla'tanus*.

SYMPHORICA'RPUS. (From *symporeo*, to accumulate, and *karpos*, a fruit; clustered fruit. Nat. ord., *Caprifoliaceae* [Caprifoliaceae]). Linn., 5-*Pentandria* 1-*Monogynia*.)

Hardy deciduous shrubs, from North America. Cuttings in autumn, and freely by suckers; good, common soil. The flowers of *racemosus* are hunted after by bees, and its masses of white fruit are grateful to many birds, besides looking very pretty in winter.

S. montanus (mountain). 6. Pink. August. 1829.
 — *occidentalis* (western). 6. Pinkish. July.
 — *punic'ceus* (scarlet). 4. Red. July. 1815.
 — *racemosus* (racemed). 6. Yellowish. August. 1817.
 — *vulgaris* (common). 6. White. August. 1730.
 — *foliis-variegat'is* (variegated-leaved). 6. Pink. August.

SYMPHYTUM. Comfrey. (From *symphyo*, to make unite; healing qualities. Nat. ord., *Borageworts* [Boraginaceae]). Linn., 5-*Pentandria* 1-*Monogynia*.)

Division of the plant, chiefly in spring; good, common soil, and a rather shady situation, where few herbaceous plants would flourish.

HARDY TUBEROUS-ROOTED.

S. officinale (shop). 4. White. June. Britain.
 — *Bohemicum* (Bohemian). 3. Crimson. May. Bohemia. 1810.
 — *patens* (spreading). 4. Blue. June. Britain.
 — *tuberosum* (tuberous). 4. Yellow. July. Scotland.

HARDY HERBACEOUS.

S. asper'rimum (roughest). 6. Red, blue. July. Caucasus. 1799.
 — *Caucasicum* (Caucasian). 4. Azure. June. Caucasus. 1820.
 — *cordatum* (heart-leaved). 2. Cream. June. Transylvania. 1813.
 — *echinatum* (hedgehog). Purple. May. 1824.
 — *orientale* (eastern). 3. White. May. Turkey. 1752.
 — *peregrinum* (spreading). 2. July. Podolia. 1816.
 — *Tauricum* (Taurian). 3. White. June. Tauria. 1806.
 — *bullatum* (blistered-leaved). 2 $\frac{1}{2}$. Pale yellow. June. Caucasus. 1818.

SYMPLE'ZA. (From *sympiezo*, to press; the stamens compressed in the tube. Nat. ord., *Heathworts* [Ericaceae]). Linn., 4-*Tetrandria* 1-*Monogynia*.)

Greenhouse evergreen. Cuttings of the points of shoots a couple of inches long, the base part being a little firm, in sand, under a bell-glass; sandy, fibry peat. Winter temp., 38° to 45°.

S. capitellata (small-headed). 1 $\frac{1}{2}$. July. Cape of Good Hope. 1812.

SY'MPLELOS. (From *symploke*, a connection; stamens united. Nat. ord., *Storaxworts* [Styracaceae]). Linn., 18-*Polyadelphia* 2-*Polyandria*.)

Greenhouse evergreen shrubs. Cuttings of half-ripened shoots in sand, under a glass; sandy, fibry loam, and a little fibry peat. Winter temp., 40° to 45°. The *coccinea* will require 16° more heat, but similar treatment otherwise. *Sinica* should have a place on a conservative wall.

S. coccinea (scarlet). Rose. Mexico. 1825.
 — *cratagoides* (eratægus-like). White. April. Nepal. 1824.

— *Sinica* (Chinese). 3. White. May. China. 1822.
 — *tinctoria* (dyer's. Laurel-leaved). 3. Yellow. Carolina. 1780.

SYNA'NDRA. (From *syn*, together, and *aner*, anther; the anthers in pairs. Nat. ord., *Lipworts* [Lamiaceae]). Linn., 14-*Didynamia* 1-*Gymnospermia*. Allied to *Melittis*.)

Hardy herbaceous perennial. Seeds, and division in spring; dry, sandy soil.

S. grandiflora (large-flowered). Yellow. June. N. Amer. 1827.

SYNAPHE'BIUM. (From *syn*, together, and *phleps*, a vein; the veins on the fronds. Nat. ord., *Ferns* [Polypodiaceae]). Linn., 24-*Cryptogamia* 1-*Filices*.)

Stove, brown-spored Ferns. See FERNS.
S. lobul'sum (small-lobed). May. E. Ind.
 — *obtusum* (blunt). May. Malacca.
 — *pectinatum* (comb-like). May. E. Ind.
 — *recurvatum* (curled-back). May. Malacca.

SYNNE'TIA. This genus is added to *Gladiolus*; and the following species, therefore, all from the Cape of Good Hope, are—

G. bicolor (two-coloured). 4. Brown, yellow. March. 1786.

— *galea'ta* (helmeted). 1. Brown, yellow. April. 1825.

— *variegat'a* (variegated). 4. Variegated. May. 1825.

SYRIN'GA. The Lilac. (From *syrix*, the Persian name. Nat. ord., *Oliveworts* [*Oleaceæ*]. Linn., 2-*Diandria* 1-*Monogynia*.)

Hardy deciduous shrubs. Layers and suckers generally; scarce kinds by budding or grafting; close-headed ones, grafted standard-high on the ash, would look very interesting; common garden-soil.

S. Emo'di (Emodi). 10. White. April. Himalayas.

— *Josika'a* (Josika's). 8. Deep lilac. June. Germany. 1833.

— *Persica* (Persian). 5. Purple. May. Persia. 1840.

— *alba* (white). 2. White. May. Persia.

— *laciniat'a* (cut-leaved). 5. Purple. May. Persia.

— *sativifo'lia* (sage-leaved). 5. May.

— *vulgar'is* (common). 8. Blue. May. Persia. 1597.

— *alba* (white). 5. White. May. Persia.

— *alba-ma'jor* (larger-white). 5. White. May.

— *alba-pl'e'na* (double-white). 5. White. May.

— *caerulea* (blue). Blue.

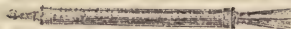
— *rubra* (red). 10. Red. May.

— *rubra-ma'jor* (larger-red). 10. Red. May.

— *rubra-pl'e'na* (double-red). 10. Red. May.

— *violacea* (violet). 8. Purple. May. Persia.

SYRINGE. This is a most useful implement for impelling water over plants in pots, wall-trees, &c. Read's syringes are excellent. When the object is merely to refresh the plants, the operator should stand at some distance from the plants, so that the water may spread and fall upon them like a shower. But if aphides have to be destroyed, he may be closer to the plants, and drive forth the water with greater force. The accompanying sketch represents the water passing through many minute holes; but the syringe is sold with spare nozzles, so as to deliver the water in a greater body; and with elbows, so that the opposite sides of plants in greenhouses may be syringed without moving them. See **ENGINE**.



SYZY'GIUM. (From *syzygos*, coupled; branches and leaves in pairs. Nat. ord., *Myrtleblooms* [*Myrtaceæ*]. Linn., 12-*icosandria* 1-*Monogynia*.)

Stove, white-flowered, evergreen shrubs. Cuttings of half-ripened shoots in sand, under a bell-

glass, and in a moist bottom-heat; sandy loam and fibry peat. Winter temp., 50° to 60°; summer, 60° to 85°.

S. caryophyllifo'lium (clove-leaved). 20. E. Ind. 1822.

— *fruticosum* (shrubby). May. E. Ind. 1824.

— *glomerat'um* (crowded). May. Mauritius. 1824.

— *inophy'lium* (fibrous-leaved). May. E. Ind. 1826.

— *Jambolai'num* (Jambolana-tree). 20. August.

— *obovatum* (reversed-egg-leaved). May. Mauritius. 1822.

— *paniculat'um* (panicked). April. Mauritius. 1822.

— *venosum* (veiny). May. Nepaul. 1824.

Zeylanicum (Ceylon). 10. June. Ceylon. 1798.

T.

TABERNÆMONTA'NA. (Named after J.

T. *Tabernæmontanus*, a celebrated botanist.

Nat. ord., *Dogbanes* [*Apocynaceæ*]. Linn.,

5-*Pentandria* 1-*Monogynia*. Allied to *Plumieria*.)

Stove evergreens, all white-flowered, unless otherwise mentioned. Cuttings of half-ripened shoots in the beginning of summer, in sand, under a bell-glass, and in a moist bottom-heat; fibry peat and lumpy loam, with a fair portion of silver sand, and small pieces of charcoal. Winter temp., 55°; summer, 60° to 85°.

T. alba (white). 10. May. W. Ind. 1780.

— *amygdalifo'lia* (almond-leaved). 6. Yellow. July. S. Amer. 1780.

— *arcea'ta* (arched). 40. Cream. Peru. 1824.

— *citrifo'lia* (citron-leaved). 15. Yellow. Jamaica. 1784.

— *coronaria* (garland). 4. July. E. Ind. 1770.

— *flor'e-pl'e'no* (double-flowered). 4. July. W. Ind. 1770.

— *crispa* (curled). 6. July. E. Ind. 1818.

— *cynosa* (cymed). 10. Carthage. 1820.

— *densiflora* (dense-flowered). 4. June. E. Ind. 1824.

— *dichotoma* (forked). 12. September. Ceylon. 1820.

— *discolor* (two-coloured). 10. Cream. April. Jamaica. 1822.

— *grandiflora* (large-flowered). 6. Trinidad. 1823.

— *gratissima* (most grateful). 6. June. E. Ind. 1824.

— *laurifo'lia* (laurel-leaved). 13. Yellow. May. W. Ind. 1768.

— *odora'ta* (sweet-scented). 4. Yellow. October. Cayenne. 1793.

— *persicariafo'lia* (persicaria-leaved). 6. Cream. Mauritius. 1819.

— *undulat'a* (waved). 10. Orange. Trinidad. 1824.

TACCA. (The Malay name. Nat. ord., *Taccads* [*Taccaceæ*]. Linn., 6-*Hexandria* 1-*Monogynia*.)

Stove, East Indian bulbs, except *integrifo'lia*. Division of the roots in spring; sandy loam and a little fibry peat. Winter temp., 60°; summer, 60° to 90°, and plenty of moisture.

T. aspera (rough). 2. Brown. July. 1816.

— *Guineensis* (Guinea). 2. July.

— *integrifo'lia* (entire-leaved). 4. Purple. June. 1810. Herbaceous.

T. lævis (smooth). 2. Brown. July. 1820.
— *phalifera* (crest-bearing). 4. Brown. July.
Mauritius. 1826.

— *pinnatifida* (leaflet-cut). 2. Purple. 1793.

TACHIA. (The Guianan name. Nat. ord., *Gentianworts* [*Gentianaceæ*]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Leianthus*.)

Stove, yellow-flowered evergreens, from Jamaica. Cuttings of half-ripened shoots in sand, under a bell-glass, in May; sandy, fibry peat, and a very little loam and leaf-mould. Winter temp., 55°, and kept in a dryish atmosphere; summer, 60° to 80°, and moist.

T. cordifolia (heart-leaved). 2. 1816.

— *longifolia* (long-leaved). 1½. July. 1793.

— *Swartzii* (Swartz's). 10. July. 1793.

TACHIGALIA. (The Guianan name. Nat. ord., *Leguminous Plants* [*Fabaceæ*]. Linn., 10-*Decandria* 1-*Monogynia*. Alliance near the Tamarind.)

Stove, yellow-flowered, evergreen trees. Cuttings of ripened shoots in sand, under a glass, in March, in bottom-heat; also seeds in a hotbed; sandy, fibry loam. Winter temp., 50° to 55°; summer, 60° to 80°.

T. bifluga (two-paired). 20. Brazil. 1822.

— *paniculata* (panicled). 60. Guiana. 1827.

TACSONIA. (From *tacso*, the name of one of them in Peru. Nat. ord., *Passionworts* [*Passifloraceæ*]. Linn., 16-*Monadelphina* 2-*Pentandria*.)

Half-hardy evergreen climbers. Cuttings of young shoots any time in summer; fibry loam and a little sandy peat and leaf-mould. Fruit of *mollissima* is eatable.

T. manicata (sleeved). 20. Scarlet. September. Peru. 1843.

— *mollissima* (softest-leaved). 20. Rose. September. Quito. 1844.

— *pedunculata* (long-flower-stalked). 10. Rose. Peru. 1815.

— *pinnatifidipula* (leaflet-stipuled). 30. Pale rose. September. Chili. 1828.

— *sanguinea* (blood-coloured). Crimson. July. Trinidad. 1852.

TÆNIOPsis. (From *tainia*, a fillet, and *opsis*, like; the resemblance of the leaf, or frond. Nat. ord., *Ferns* [*Polypodiaceæ*]. Linn., 24-*Cryptogamia* 1-*Filices*.)

Stove, brown-spored Ferns. See **FERNs**.
T. lineata (narrow-leaved). 2. June. W. Ind.
— *revoluta* (curled-back). June. Nepal.

TÆNITIS. (From *tainia*, a fillet; the resemblance of the fronds, or leaves. Nat. ord., *Ferns* [*Polypodiaceæ*]. Linn., 24-*Cryptogamia* 1-*Filices*.)

Stove, brown-spored Ferns. See **FERNs**.
T. angustifolia (narrow-leaved). ½. July. Jamaica. 1816.

— *blechnoides* (blechnum-like). May. India.

— *Chinensis* (Chinese). June. China. 1828.

— *furcata* (forked). June. Trinidad. 1824.

— *graminifolia* (grass-leaved). ½. July. Trinidad. 1820.

— *lanceolata* (spear-head-fronded). 1. August. W. Ind. 1818.

TAGE'TES. (Named after a Tuscan divinity. Nat. ord., *Composites* [*Asteraceæ*]. Linn., 19-*Syngenesia* 2-*Superflua*.)

Yellow-flowered, Mexican annuals, except where otherwise mentioned. Annuals, sown in open ground in May; or better still, in a hotbed in the beginning of April, and planted out in the middle of May. Perennials, by seed, division, and cuttings. *Lu'cida* is pretty either for a cool greenhouse or a bed on the lawn in summer.

T. angustifolia (narrow-leaved). 3. August. 1826.
— *Caracasana* (Caracas). 3. August. Caracas. 1819.

— *clandestina* (concealed). 3. July. 1823.

— *corymbosa* (corymbed). 1½. August. 1825.

— *lu'tea* (yellow). 1½. August. 1825.

— *daucoides* (carrot-like). June.

— *erecta* (erect. *African Marigold*). 3. July. 1896.

— *filifolia* (thread-leaved). 3. August. 1826.

— *florida* (florid). 1. August. 1827. Herbaceous.

— *glandulifera* (gland-bearing). 6. October. 1826.

— *glandulosa* (glanded). 3. September. S. Amer. 1819.

— *lu'cida* (shining-leaved). 1. August. S. Amer. 1798. Herbaceous.

— *micrantha* (small-flowered). 3. August. 1822.

— *minuta* (minute-flowered). 2. August. Chili. 1728.

— *patula* (spreading. *French Marigold*). 2. August. 1573.

— *subvillosa* (slightly-shaggy). 2. September. 1823.

— *tenuifolia* (fine-leaved). 3. August. Peru. 1797.

TALAU'MA. (Its South American name. Nat. ord., *Magnoliads* [*Magnoliaceæ*]. Linn., 13-*Polyandria* 6-*Polygynia*.)

Stove evergreens. Cuttings of ripe shoots, thinly, in sand, under a large bell-glass, in heat; grafting and inarching on *Magnolia obovata*; fibry peat and a little loam and sand. Winter temp., 45° to 55°; summer, 60° to 80°.

T. Cando'llii (Decandolle's). 15. Striped. April. Java. 1827.

— *Plumieri* (Plumier's). 60. White. Antilles. 1829.

— *pu'mila* (dwarf). 3. Cream. Java. 1786.

TALIE'RA. (The Indian name. Nat. ord., *Palms* [*Palmaceæ*]. Linn., 6-*Hexandria* 1-*Monogynia*.)

Stove Palm. Seeds; rich, turfy loam. Winter temp., 50° to 60°; summer, 60° to 90°.

T. Bengalensis (Bengal). 100. E. Ind. 1823.

TAL'NUM. (From *thalia*, a green branch; its durable verdure. Nat. ord., *Purslanes* [*Portulacaceæ*]. Linn., 11-*Dodecandria* 1-*Monogynia*.)

Annuals and biennials, sown in a hotbed early in spring, pricked out, and bloomed in the greenhouse, or a sheltered place out of doors; the others are under-shrubs, easily propagated by cuttings of the succulent shoots, dried at the base before inserting them in sandy soil; peat, loam, sand, and brick-rubbish. Winter temp., 45° to 55°, and dryish; summer, 60° to 80°.

ANNUALS, &c.

T. polyandrum (many-stamened). Purple. August. Australia. 1853.

T. purpureum (purple). Purple. August. Mexico. 1825.

— *reflexum* (bent-back). 1. Yellow. September. S. Amer. 1800. Biennial. EVERGREENS, &c.

T. Andre'usii (Andrews'). 1. Pink. August. W. Ind. 1800.

— *crassifolium* (thick-leaved). 1. Red. August. 1800.

— *albiflorum* (white-flowered). White. July. S. Amer. 1819.

— *cuneifolium* (wedge-leaved). 1. Purple. August. Egypt. 1820.

— *patens* (spreading-flowered). 1. Red. September. S. Amer. 1776. Herbaceous.

— *teretifolium* (cylindric-leaved). 1. Pink. August. N. Amer. 1823. Herbaceous.

— *triangulare* (triangular). 2. Yellow. August. W. Ind. 1739.

TALISIA. (From *Toulich*, the name in Guiana. Nat. ord., *Soapworts* [Sapindaceæ]. Linn., 8-*Ocandria* 1-*Monogynia*.)

Stove evergreen shrub. Cuttings of ripened wood, with leaves, thinly inserted in sand, under a glass, in moist bottom-heat; sandy peat and fibry loam. Winter temp., 50° to 60°; summer, 60° to 85°.

T. Guianensis (Guiana). 8. Rose. Guiana. 1824.

TALLOW-TREE. *Stillingia sebifera*.

TAMARINDUS. Tamarind-tree. (From *Tamarindus*, the Arabic name. Nat. ord., *Leguminous Plants* [Papilionaceæ]. Linn., 16-*Monadelphia* 6-*Decandria*.)

Stove, yellow-flowered, evergreen trees. Seeds soaked, and sown in a hotbed; cuttings in sand, in heat; sandy loam and leaf-mould. Winter temp., 50° to 60°; summer, 60° to 85°.

T. Indica (Indian). 60. July. E. Ind. 1633.

— *occidentalis* (western). 40. February. W. Ind.

TAMARISK. (From *Tamaris*, now *Tambro*, the name of a river where it grows, on the borders of the Pyrenees. Nat. ord., *Tamarisks* [Tamaricaceæ]. Linn., 5-*Pentandria* 3-*Trigynia*.)

Hardy, by cuttings under a hand-light, or even in the open air, in spring or autumn, and any common soil; the tender species require a warm greenhouse or a cool plant-stove, and to be grown in peat and loam; increased by cuttings under a hand-glass, in sand, and in heat.

HARDY EVERGREENS.

T. Dahurica (Dahurian). 6. Pink. Dahuria. 1827.

— *Guttica* (French). 10. Flesh. July. England. Deciduous.

— *Pallasii* (Pallas's). 8. Flame. July. Caucasus. 1827.

— *tetrandra* (four-stamened). 6. White. July. Tauria. 1821.

STOVE EVERGREENS.

T. dioica (dioecious). 6. E. Ind. 1823.

— *Indica* (Indian). 6. Pink. July. E. Ind.

— *orientalis* (eastern). 10. Pink. E. Ind.

TAMONEA. (From *tamone*, the Guianan name. Nat. ord., *Verbenas* [Verbenaceæ]. Linn., 14-*Didynamia* 2-*Angiospermia*. Allied to *Lantana*.)

Tender, blue-flowered biennials. By seed in

a hotbed in spring; pricked out, and potted off, and bloomed in the greenhouse.

T. Curassavica (Curassao). 1. July. W. Ind. 1823.

— *mutica* (awnless). 1. July. Guiana. 1820.

— *apicala* (spiked). September. Trinidad. 1824.

TANACE TUM. Tansy. (Derivation uncertain. Nat. ord., *Compositæ* [Asteraceæ]. Linn., 19-*Syngenesia* 2-*Superflua*.)

Hardy herbaceous. Divisions in spring, and cuttings under a hand-light in summer; any soil. *Grandiflorum* requires a cool greenhouse or a cold pit in winter, and a sandy, fibry loam.

T. grandiflorum (large-flowered). 1½. Yellow. June. Cape of Good Hope. 1820.

— *purpureum* (purple). 1½. Pale red. June. Nepal. 1811.

— *vulgaris* (common). 2. Yellow. June. Britain.

— *variegatum* (striped-leaved). 2. Yellow. July. Britain.

TANGHINIA. (From *Tanghin*, the Madagascar name. Nat. ord., *Dogbanes* [Apocynaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Cerbera*.)

Stove, white-flowered evergreens, from the East Indies. Cuttings of half-ripened shoots in sand, under a bell-glass, in heat; peat and loam, with a little sand. Winter temp., 50° to 60°; summer, 60° to 90°. The nut of *veneniflua*, though not larger than an almond, is sufficient to poison a score of people.

T. dichotoma (forked). June. E. Ind. 1827.

— *laurifolia* (laurel-leaved). 9. June. E. Ind. 1818.

— *Manghas* (Manghas). 20. August. 1806.

— *Odollum* (Odollam). 20. August. 1756.

— *veneniflua* (poison-flowing). 30. Pink. May. Madagascar. 1826.

TANGIER PEA. *La'thyrus Tingitana*.

TARRAGON. (*Artemisia dracunculius*.)

Used in salads to correct the coldness of the other herbs; and its leaves are excellent when pickled.

Soil.—Poor, dry soil is essential to produce it in perfection, and hardy.

Propagated by parting the roots. To have green Tarragon during the winter and spring, strong-rooted plants must be planted, small portions at a time, once or twice a month, from the close of October to the end of January. For the main crop, it may be planted any time from the end of February until the conclusion of May.

Plant ten inches apart, and, if dry weather, water must be given regularly every evening until they are rooted. They soon establish themselves, and may be gathered from the same year. As they run up, the stems should be cut down, which causes them to shoot afresh.

At the end of autumn, if some established plants are set beneath a south fence, they will often afford leaves throughout the winter, or, at all events,

come early in the spring. Some of the leaves should be gathered in the summer, and dried for winter's use.

TARCHONA'NTHUS. African Fleabane. (From *tarchon*, Arabic for tarragon, and *anthos*, a flower. Nat. ord., *Compositæ* [*Asteraceæ*]. Linn., 19-*Syngenesia* 1-*Æqualis*.)

Greenhouse, purple-flowered evergreens, from the Cape of Good Hope. Cuttings in sand, under a bell-glass, in the beginning of summer; fibry, sandy loam and a little leaf-mould. Winter temp., 40° to 48°.

T. camphoratus (camphor-scented). 10. 1690.
— *ellipticus* (oval-leaved). 8. 1816.

TASMAN'NIA. (Named after O. Tasman, a Dutch navigator. Nat. ord., *Magnoliads* [*Magnoliaceæ*]. Linn., 23-*Polygamia* 1-*Monœcia*. Allied to *Drimys* and *Illicium*.)

The fruit of *T. aromatica* is used for pepper in New Holland. Greenhouse, New Holland, white-flowered evergreens. Cuttings of firm shoots in sand, under a bell-glass; kept cool at first, and then, when the base swells, placed in a sweet, mild bottom-heat. Fibry, sandy loam, with a little peat; require the protection of a cold pit in winter.

T. aromatica (aromatic). 10. May. 1823.
— *dipetala* (two-petaled). 8. May. 1824.

TAXODIUM. Deciduous Cypress. (From *taxus*, the yew, and *oides*, like. Nat. ord., *Conifers* [*Pinaceæ*]. Linn., 21-*Monœcia* 8-*Octandria*.)

Hardy Conifers. Seeds in April; cuttings in autumn or spring, in a moist, shady place; layers, also, root the first season; a low, moist situation suits all the hardy varieties best; cuttings will also strike in water as freely as the *Nerium*. The evergreens should have a little peat added, and will require a little protection in winter, such as a cold pit would give, or surrounding them with a frame of Spruce-branches.

T. Cape'nsæ (Cape. Cypress Broom). 5. April. Cape of Good Hope. Evergreen.
— *distichum* (two-ranked-leaved). 50. May. N. Amer. 1640.
— *exce'lsum* (lofty). May.
— *nuciferum* (nut-bearing). May.
— *nutans* (nodding). 20. May.
— *patens* (spreading). 20. May.
— *pendulum* (drooping). May.
— *sempervirens* (evergreen). 50. Yellow. New Zealand. 1843. Evergreen.
— *Sine'nsæ* (Chinese). May.

TAXUS. The Yew. (From *taxon*, a bow; being used for bows. Nat. ord., *Taxads* [*Taxaceæ*]. Linn., 22-*Diœcia* 13-*Polyandria*.)

Evergreen Conifers. Seed, gathered in October, either sown directly, or taken to the rot-heap until spring, when the plants, many of them, will appear the following year; cuttings, ten inches in length, lower half deprived of leaves, in sand, in a shady border, in April and August, taken off with a heel; deep, loamy soil, with a fair portion of moisture.

T. adpressa (close-pressed). Japan. 1844.

— *bacca'ta* (common. Berried). 20. February. Britain.

— *fastigiata* (tapering). 20. April. Ireland. 1790.

— *foliis variegatis* (variegated-leaved). 3. March.

— *fructu-luteo* (yellow-berried). April. Ireland.

— *procumbens* (lying-down). 8. February. Europe.

— *sparsifolia* (scattered-leaved). March.

— *variegata* (variegated). 20. February. Europe.

— *Canade'nsis* (Canadian). 20. February. Canada. 1800.

— *Inuka'ja* (Inukaja). Japan. 1838.

— *Makaya* (Makay's). May. Japan. 1838.

— *nucifera* (nut-bearing). 20. China. 1820.

TEAK WOOD. *Te'ctona*.

TEASEL. *Di'psacus*.

TEA-TREE. *The'a* and *Lycium afrum*.

TE'COMA. (A contraction of the Mexican name. Nat. ord., *Bignoniads* [*Bignoniaceæ*]. Linn., 14-*Didynamia* 2-*Angiospermia*.)

Mostly by cuttings; the hardy *ra'dicans* and its varieties by cuttings of the shoots, and very freely by pieces of the roots; all the others are the better for a glass being placed over them, and flourish in loam and peat. The *Cape'nsis* makes a neat pot-plant.

HARDY EVERGREEN CLIMBERS.

T. ra'dicans (rooting). 30. Orange. July. N. Amer. 1640.

— *ma'jor* (greater. *Ash-leaved*). 30. Orange. July. N. Amer. 1640.

— *mi'nor* (smaller. *Ash-leaved*). 20. Scarlet. July. N. Amer. 1640.

GREENHOUSE EVERGREEN CLIMBERS, &c.
T. australis (southern). Orange. June. N.S. Wales. 1793.

— *Cape'nsis* (Cape). 8. Orange. August. Cape of Good Hope. 1823.

— *diversifolia* (various-leaved). N. Holland. 1830. Deciduous.

— *grandiflora* (large-flowered). 30. Orange. July. China. 1800. Deciduous.

— *jasminoïdes* (jasmine-like). Pink. August. N. S. Wales.

— *meona'ntha* (less-flowered). 12. Blush. April. N. Holland. 1815.

— *mol'lis* (soft). 6. Yellow. Mexico. 1824. Deciduous.

STOVE EVERGREEN SHRUBS.

T. digitata (hand-leaved). 6. Yellow. S. Amer. 1818.

— *pentaphylla* (five-leaved). 6. Orange. July. E. Ind.

— *rosefolia* (rose-leaved). 6. Yellow. Peru.

— *sambucifolia* (elder-leaved). 6. Yellow. Peru. 1824.

— *sorbifolia* (sorb-leaved). 6. Yellow. S. Amer.

— *splendida* (splendid). 6. Yellow. Brazil. 1820.

— *stans* (standing). 12. Yellow. August. S. Amer. 1790.

— *incisa* (cut-leaved). 10. Yellow. August. S. Amer. 1820.

— *xylocarpa* (woody-fruited). White. W. Ind. 1820.

TE'CTONA. Teak-tree. (The Malabar name is *tekka*. Nat. ord., *Verbenas* [*Ver-*

benacæe]. Linn., 5-Pentandria 1-Monogynia.)

For ship-building this gives the best timber. Stove evergreen tree. Cuttings of ripened shoots in sand, under a bell-glass, in April, and in a moist bottom-heat; sandy loam and fibry peat. Winter temp., 50° to 55°; summer, 60° to 85°.

T. grandis (great). 100. White. E. Ind. 1777.

TEE'DIA. (Named after some person unknown. Nat. ord., Figworts [Scrophulariaceæ]. Linn., 14-Didynamia 2-Angiospermia. Alliance near to Pentstemon.)

Greenhouse, purple-flowered biennials, from the Cape of Good Hope. Seeds in a slight hotbed in March; cuttings of side-shoots, taken off in April or August, and inserted in sandy soil, under a hand-light; sandy loam and vegetable mould.

T. lucida (shining). 2. April. 1774.

— *pubescens* (downy). 2. May. 1816.

TEESDA'LIA. (Named after R. Teesdale, author of a Flora about Castle Howard. Nat. ord., Crucifers [Brassicacæe]. Linn., 15-Tetradynamia. Allied to Candytuft.)

Hardy, white-flowered annuals. Seeds; common soil.

T.iberis (candy-tuft-like). 4. May. Britain.

— *lepidium* (cress-like). 4. March. South Europe. 1824.

TELE'RIA. (Name not explained. Nat. ord., Composites [Asteracæe]. Linn., 19-Syngenesia 2-Superflua. Allied to Bupthalmum.)

Hardy herbaceous. Seeds, and divisions of the root in spring; common soil.

T. speciosa (showy). 4. Yellow. July. Hungary. 1739.

TELFAR'IA. (Named in honour of Mrs. Telfair. Nat. ord., Cucurbits [Cucurbitacæe]. Linn., 22-Diacia 13-Monadelphica.)

Stove twiner. Cuttings of the flowering shoots, if procurable; if not, other young shoots, getting firm, in sand, and in heat; peat and loam. Summer temp., 60° to 85°; winter, 50° to 58°.

T. pedata (doubly-lobed). 20. Pink. July. Zanzibar. 1825.

TE'LLIMA. (An anagram of *Mitella*; separated from the genus *Mitella*. Nat. ord., Saxifrages [Saxifragacæe]. Linn., 10-Decandria 2-Digynia.)

Hardy herbaceous. Division; sandy loam and peat.

T. grandiflora (large-flowered). 1. Pink. April. N. Amer. 1826.

TELO'PEA. Warratah. (From *telopas*, seen at a distance; conspicuous flowers. Nat. ord., Proteads [Proteacæe]. Linn., 4-Tetrandria 1-Monogynia.)

This is the finest of all the Proteads. Greenhouse evergreen. Cuttings of ripe shoots with leaves on, unless the one at the base, in sand, under a glass, and kept cool until the base swells, when a little heat may be given; also by layer-

ing the suckers that rise from the roots; sandy loam and peat, with a third of broken stone, potsherds, and charcoal, and the pot extra well drained. Winter temp., 45° to 55°, and not much water; summer, 60° to 75°, and a good supply of moisture, the pot being defended from the sun.

T. speciosissima (most splendid). 10. Scarlet. June. N. S. Wales. 1789.

TEMASIA WEBERANA. See APPLE.

TEMPERATURE is one of the most important circumstances connected with the cultivation of plants; for upon its proper regulation and just accommodation to the intensity of light depend, in the chief degree, whether a plant is healthy, and capable of performing its functions. Every seed has its appropriate temperature for germinating (see GERMINATION); every root has a temperature in which it imbibes food most favourably (see BOTTOM-HEAT); and every leaf has a temperature in which it respire most vigorously. (See LEAVES and NIGHT TEMPERATURE.)

TEMPLES dedicated to some deity of the heathen mythology, as to Pan in a grove, or to Flora among bright, sunny parterres, are not inappropriate, if the extent of the grounds and the expenditure on their management allow them to be of that size and of that correctness of style, which give the classic air and dignity that are their only sources of pleasure.

TEMPLETO'NIA. (Named after J. Templeton, an Irish botanist. Nat. ord., Leguminous Plants [Fabacæe]. Linn., 16-Monadelphia 6-Decandria. Allied to *Scottia*.)

Greenhouse, red-flowered evergreens, from New Holland. Cuttings of half-ripened wood in sand, under a bell-glass; fibry peat and sandy loam, most of the first, with a little charcoal. Winter temp., 40° to 48°.

T. glauca (milky-green). 2. April. 1818.

— *retusa* (bent-back-leaved). 2. May. 1803.

TENTACULATE, furnished with thread-like appendages.

TEPHRO'SIA. (From *tephros*, ash-grey; colour of some of the species. Nat. ord., Leguminous Plants [Fabacæe]. Linn., 17-Diadelphia 4-Dodecandria. Allied to *Galega*.)

Seeds, steeped in water at 130° for a day before sowing in a hotbed; cuttings of young, stubby side-shoots in sand, under a bell-glass, in May, the stove species in a hotbed; sandy, fibry loam and peat. Greenhouse or stove temperatures.

GREENHOUSE EVERGREENS, &c.

T. Capeensis (Cape). 1. Purple. July. Cape of Good Hope. 1825.

— *Chinensis* (Chinese). Purple. July. China. 1822.

— *grandiflora* (large-flowered). 4. Pink. June. Cape of Good Hope. 1774.

- T. mucronata* (spine-pointed). 2. Pale red. June. Cape of Good Hope. 1823.
 — *sericea* (silky). 1. Red. July. Cape of Good Hope. 1800.
 — *striata* (erect-podded). 3. Pink. June. Cape of Good Hope. 1774.

STOVE EVERGREENS, &c.

- T. Apollinea* (Apollinis). 2. Blue. July. Egypt. 1816.
 — *biflora* (two-flowered). 2. Purple. July. 1816.
 — *caudata* (white-leaved). 4. Pale red. Bengal. 1816.
 — *capitata* (small-headed). 1½. Red. July. Owhyhee. 1823. Herbaceous.
 — *Caribæa* (Caribbean). 3. Red, white. June. W. Ind. 1786.
 — *Colonila* (Colonil). 3. Purple. July. E. Ind. 1818.
 — *filifolia* (thread-leaved). Red. July. Cape of Good Hope. 1824.
 — *fruticosa* (shrubby). 6. Red. July. E. Ind. 1816.
 — *Heyneana* (Heyne's). 3. Purple. June. E. Ind. 1822.
 — *lanceolata* (lance-leaved). 3. Pale yellow. July. 1820.
 — *linearis* (narrow-leaved). 1. Red. July. W. Ind. 1823.
 — *litoralis* (shore). 1. Purple. July. W. Ind. 1824.
 — *longifolia* (long leaved). 3. Red. June. S. Amer. 1820.
 — *ochroleuca* (pale yellow). 3. Cream. W. Ind. 1799.
 — *toxicaria* (fish-poison). 3. Palered. W. Ind. 1791.
 — *villosa* (shaggy). 2. White. July. E. Ind. 1779.

TEPHROTHAMNUS. Synonyme of Goodia.

TERMINALIA. (From *terminus*; leaves in clusters at the end of the branches. Nat. ord., *Myrobalans* [Combretaceæ]. Linn., 23-Polygamia 1-Monæcia. Allied to Bucida.)

Stove evergreens. Cuttings of ripe shoots, with most of the leaves, in sand, thinly, under a bell-glass, and in a sweet bottom-heat; sandy loam and fibry peat. Winter temp., 55° to 60°; summer, 65° to 85°. The juice of *Cata'ppa* is a chief ingredient in Indian-ink.

- T. angustifolia* (narrow-leaved). 20. White, green. E. Ind. 1692.
 — *arbuscula* (shrub). 1. White, green. S. Amer. 1822.
 — *Bellerica* (Belleric). 20. Yellow, green. E. Ind. 1818.
 — *Bengalensis* (Bengal). White. June. E. Ind. 1826.
 — *Biticaria* (Biticaria). 20. Yellow, green. E. Ind. 1823.
 — *Cata'ppa* (Catappan). 20. White. E. Ind. 1778.
 — *subcordata* (slightly-heart-leaved). 20. Yellow, green. S. Amer. 1796.
 — *Chebula* (Chebuia). 20. White. E. Ind. 1796.
 — *citrina* (citron-like). 20. Yellow, green. E. Ind. 1823.
 — *disticha* (two-rowed). 20. Yellow, green. E. Ind. 1823.
 — *Fatrasa* (Fatrasa). 20. Yellow, green. Madagascar. 1826.
 — *Gangetica* (Gangetic). 20. Yellow, green. E. Ind. 1820.
 — *latifolia* (broad-leaved). 25. W. Ind. 1800.
 — *Mauritiana* (Mauritian). 20. Yellow, green. Mauritius. 1824.
 — *Moluccana* (Molucca). 20. White, green. E. Ind. 1804.
 — *procera* (tall). 40. Yellow, green. E. Ind. 1818.
 — *rotundifolia* (round-leaved). 20. Yellow, green. E. Ind. 1824.
 — *Tanibouca* (Tanibouca). White. June. Guiana. 1826.

TERNSTRÖMIA. (Named after *M. Ternström*, a Swedish botanist. Nat. ord., *Theads* [Ternströmiaceæ]. Linn., 13-Polyandria 1-Monogynia.)

Stove evergreen shrubs. Cuttings of ripe young shoots in sandy soil, under a bell-glass, in heat; fibry loam and sandy peat. Winter temp., 55° to 60°; summer, 65° to 85°.

- T. brevipes* (short-flower-stalked). 6. Red. July. S. Amer. 1818.
 — *peduncularis* (long-flower-stalked). 6. White. July. Indies. 1818.
 — *punctata* (dotted). 6. Yellowish. July. W. Ind. 1820.
 — *serrata* (saw-leaved). White. June. E. Ind. 1820.

— *venosa* (veiny). 6. White. July. Brazil. 1824.

TERRACES are not permissible anywhere but around the mansion, and they are noble and effective almost in proportion to their breadth.

TESTUDINARIA. Elephant's Foot. (From *testudo*, a tortoise; the hard, outside covering of the corn, or root. Nat. ord., *Yams* [Dioscoreaceæ]. Linn., 22-Dicæcia 6-Hexandria.)

Greenhouse, yellow-flowered deciduous climbers, from Cape of Good Hope. Cuttings of firm side-shoots, or cuttings of the young shoots when growth commences, in spring, in sandy loam, under a bell-glass, and care taken to prevent damping; might be tried by cuttings of the roots; sandy, fibry loam and turfy peat. Winter temp., 42° to 48°, and kept rather dry.

- T. elephantipes* (common. Elephant's-foot). 8. July. 1774.
 — *montana* (mountain). 8. July. 1816.

TETRA'CERA. (From *tetras*, four-fold, and *keras*, a horn; the four capsules, or divisions of seed-pod, recurved. Nat. ord., *Dilleniads* [Dilleniaceæ]. Linn., 13-Polyandria 5-Pentagynia. Allied to Delima.)

Stove, yellow-flowered, evergreen climbers. Cuttings of young shoots, getting firm, in sand, under a bell-glass, thinly, and in bottom-heat; sandy loam and fibry peat. Winter temp., 55°; summer, 65° to 85°.

- T. alnifolia* (alder-leaved). 20. Guinea. 1793.
 — *obovata* (reversed-egg-leaved). February. Guinea. 1822.

— *potatoria* (drinking). 20. Sierra Leone. 1822.
 — *volvulata* (twining). 12. S. Amer. 1818.

TETRAGONOLOBUS. (From *tetra*, four, *gonia*, an angle, and *lobos*, a pod; shape of seed-pod. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 17-Diadelphia 4-Decandria. Allied to Lotus.)

Seeds in April, in common soil; the perennials, also, by division and cuttings. Good for the fronts of flower-borders and rock-works.

HARDY HERBACEOUS.

- T. maritimus* (sea). ½. Yellow. August. Europe. 1683.
 — *Requienii* (Requien's). Yellow. July. Sardinia. 1837.
 — *siliquosus* (long-podded). ½. Yellow. July. South Europe. 1836.

HARDY ANNUALS.

- T. biflorus* (two-flowered). $\frac{1}{2}$. Yellow. July. Barbary. 1818.
 — *confertus* (twin-podded). $\frac{1}{2}$. Purple. July. Montpellier. 1759.
 — *purpureus* (purple). 1. Dark purple. July. Sicily. 1769.

TETRAGONIA. New Zealand Spinach. (From *tetra*, four, and *gonia*, an angle; fruit four-angled. Nat. ord., *Aizoons* [Tetragoniaceæ]. Linn., 12-*Icosandria* 2-*Di-pentagynia*.)

See NEW ZEALAND SPINACH.

T. expansa (stretched). Yellow. August. New Zealand. 1772. Annual.

TETRANE'MA. (From *tetra*, four, and *nema*, a filament; four stamens instead of five, as in *Pentstemon*, which it much resembles. Nat. ord., *Figworts* [Scrophulariaceæ]. Linn., 14-*Didynamia* 1-*Angiospermia*.)

Stove herbaceous. Seed sown in a slight hot-bed in March; cuttings of young shoots, a little firm, in sandy soil, under a bell-glass, in April and August; sandy loam and leaf-mould. Winter temp., 45° to 50°. In summer the shelter of the greenhouse or a warm place out of doors.

T. Mexicana (Mexican). 1. Purple, white. June. Mexico. 1843.

TETRANTHÆ'RA. (From *tetra*, four, and *aner*, another; four out of nine stamens fertile. Nat. ord., *Laurels* [Lauraceæ]. Linn., 9-*Enneandria* 1-*Monogynia*.)

Cuttings of young shoots, nearly ripe, in sand, under a bell-glass, and the stove ones in bottom-heat; fibry, sandy loam and turfy peat. Greenhouse and stove temperatures.

GREENHOUSE EVERGREENS.

T. apetalæ (no-petaled). 8. Green, yellow. April. N. Holland. 1824.

— *Japōnica* (Japan). 3. White. Japan. 1843.

STOVE EVERGREENS.

T. sebiferæ (tallowy). 10. Yellow, green. May. E. Ind. 1820.

— *trine'ris* (three-nerved). 10. Yellow, green. May. Ceylon. 1821.

TETRA'NTHUS. (From *tetra*, four, and *anthus*, a flower; four-flowered. Nat. ord., *Composites* [Asteraceæ]. Linn., 19-*Syn-genesia* 2-*Superflua*.)

Stove evergreen trailer. Division and cuttings; sandy loam and a little peat; requires the stove in winter.

T. litorea (shore). $\frac{1}{2}$. White. August. W. Ind. 1820.

TETRAPE'LTIS. (From *tetra*, four, and *pelle*, a small shield; form of flower. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-*Gynandria* 1-*Monandria*.)

Stove orchid, grown in a basket. See ORCHIDS.

T. fragrans (sweet-scented). White. E. Ind. 1836.

TETRA'PTERYS. (From *tetra*, four, and *pteron*, a wing; the carpels four-winged.

Nat. ord., *Malpighiads* [Malpighiaceæ]. Linn., 10-*Decandria* 3-*Trigynia*. Allied to *Hiræa*.)

Stove, evergreen, yellow-flowered climbers. For culture, see MALPIGHIA.

T. Acapulcensis (Acapulcan). May. Mexico. 1824.
 — *acutifolia* (pointed-leaved). May. Cayenne. 1826.

— *discolor* (two-coloured). May. Guiana. 1827.

TETRATHE'CA. (From *tetra*, four, and *theke*, a cell; anthers four-celled. Nat. ord., *Poreworts* [Tremandraceæ]. Linn., 8-*Octandria* 1-*Monogynia*.)

Greenhouse, New Holland evergreens, and purple-flowered, where not otherwise specified. Cuttings of young shoots, the side ones are the best, in sand, under a bell-glass, and great care taken to prevent damping; fibry peat, a little turfy loam, and a good portion of charcoal and broken pots. Winter temp., 43° to 50; summer, an airy situation, but the pot saved from direct sun and heavy rains, or careless waterings.

T. ericæfolia (heath-leaved). 1. Rose. July. 1820.

— *glandulosa* (glanded). 1. July. 1822.

— *hirsuta* (hairy). 2. Pink. March. 1843.

— *juncea* (rushy). 2. July. 1803.

— *nuda* (naked). 2. Crimson. May. 1843.

— *pilifera* (shaggy). 2. June.

— *pilosa* (shaggy). 1. July. 1823.

— *rubroides* (rubia-like). 1. July. 1825.

— *rubrolæta* (red-bristled). 2. Rose. July. 1834.

— *thymifolia* (thyme-leaved). 1. July. 1824.

— *verticillata* (whorled-leaved). 2. June. 1845.

— *viminea* (twiggy). 2. July.

TETRAZY'GIA. (From *tetra*, four, and *zygos*, a yoke; the parts of the flower in fours. Nat. ord., *Melastomads* [Melastomaceæ]. Linn., 8-*Octandria* 1-*Monogynia*.)

Stove, white-flowered evergreens, from the West Indies. Cuttings of side-shoots, getting firm, in sand, under a bell-glass, in heat; sandy loam and fibry peat. Winter temp., 55° to 60°; summer, 65° to 85°.

T. angustifolia (narrow-leaved). 5. May. 1823.

— *discolor* (two-coloured-leaved). 5. May. 1793.

— *eleagnoides* (eleagnus-like). 4. March.

— *tetrandra* (four-stamened). 3. March. 1815.

TETTIGONIA SPUMARIA of some entomologists, and the *Cercopis*, *Vieada*, or *Aphrophora spumaria* of others, Froth insect, Cuckoo-spit, Froth-hopper, or Frog-hopper. Its larva enveloped in its froth is especially prevalent upon the young shoots of the white-thorn or quick; but it also infests the stems of pinks, carnations, lilacs, and many other plants. If the froth be removed, one and sometimes two small, pale green, aphid-like insects are detected. These are the larva or young of the Froth-fly. By means of its sharp rostrum or beak it extracts the sap of the plant, and voids it as an excrement in the frothy form, which is its characteristic. About the end of July it sheds its skin, leaving it in the froth, and comes

forth the perfect insect. About the beginning of August the males and females may be found in pairs numerous on the plants they frequent. They are of a dirty-white colour, thickly dotted and clothed with short hairs; head broad and bluntly triangular, with black lines down its centre and sides; eyes, one on each side, near the base of the head; rostrum long, bent underneath its body when not in use; antennæ ending in a fine bristle; thorax and shield (scutellum), adjoining the back of the head, brownish. The wing-cases are brown, mottled with ochre, with four whitish patches on the margin; the under wings are transparent and iridescent. The legs, six in number, short, but two hind-legs longest, and formed for leaping. So effectual are they for the purpose, that, as Mr. Kirby states, after showing their mode of leaping, they will spring five or six feet at a time, being more than 250 times their own length, or "as if a man of ordinary height should be able to vault through the air to the distance of a quarter of a mile." It is not ascertained where the eggs of this insect are deposited, but probably on the stems of the plants on the shoots of which the larva feeds. It appears, however, that they can travel after hatching, for seedlings and plants raised from root-cuttings are often affected. We know of no better plan for destroying the insect than drawing the affected shoots between the fingers, and then dipping these into a bowl of water after each grasp. In the case of carnation stems and other flowers, requiring more tender treatment, all the froth may be taken from the insect by means of a piece of sponge, and itself then removed by a camel's hair brush.

TEUCRIUM. Germander. (Named after *Teucer*, a Trojan prince, who first used it medicinally. Nat. ord., *Lipworts* [Lamiaceæ]. Linn., 14-*Didynamia* 1-*Gymnospermia*.)

Annuals, seeds in the open ground in April; perennials, by seeds and division; shrubs, by cuttings in sandy soil, under a bell-glass, in spring, and a hand-light in summer. Most of them in the atmosphere of London, and farther north, require a cold pit or a greenhouse in winter. In dry places in the south of England they will frequently stand our winters uninjured. They are not at all particular as to soil.

HARDY EVERGREENS.

- T. angustissimum* (narrowest-leaved). 2. Purple. June. Spain. 1818.
— *brevifolium* (short-leaved). 1. Pink. June. Crete. 1824.

- T. orientale* (eastern). 1. Blue. July. Levant. 1725.
— *polium* (poly). 1. Pale. August. South Europe. 1562.
— — *angustifolium* (narrow-leaved). Purple. July. Spain. 1732.
— — *flavescens* (yellowish). Yellow. July. South Europe. 1731.
— *saxatile* (rock). ♀. Pale yellow. July. Valencia. 1820.
— *thymifolium* (thyme-leaved). ♀. Reddish. August. Spain. 1816.

HARDY HERBACEOUS.

- T. campanulatum* (bell-flowered). 1. Blue. July. Levant. 1728.
— *Canadense* (Canadian). 2. Purple. August. N. Amer. 1768.
— *chamaedrys* (common-Germander). 3. Purple. July. England.
— *Hyrcanicum* (Hyrcanian). 1½. Purple. September. Persia. 1763.
— *Laxmanni* (Laxmann's). 1. Variegated. July. Siberia. 1800.
— *lucidum* (shining). 1½. Purple. August. South Europe. 1730.
— *Lusitanicum* (Portuguese). 1½. Purple. August. Portugal. 1822.
— *Massiliense* (Marseilles). 2. Purple. France. 1732.
— *multiflorum* (many-flowered). 1. Light red. August. Spain. 1732.
— *pycnophyllum* (close-leaved). ♀. Purple. July. Spain. 1816.
— *Virginicum* (Virginian). 2. Blue. N. Amer. 1768.

GREENHOUSE HERBACEOUS.

- T. bicolor* (two-coloured). Yellow, red. July. Chili. 1826.
— *inflatum* (swollen). 2. Red. September. Jamaica. 1778. Stove.
— *Nissolium* (Nissolian). 1. Purple. July. Spain. 1752.

GREENHOUSE EVERGREENS.

- T. abutiloides* (abutilon-like). 1½. Yellow. April. Madeira. 1777.
— *Arduini* (Arduin's). 1½. Yellow. July. Candia. 1823.
— *Asiaticum* (Asiatic). 2. Pink. August. 1777.
— *betonicum* (betony-like). 1½. Lilac. July. Madeira. 1775.
— *caenum* (hoary). 1½. Purple. Armenia. 1836.
— *Creticum* (Cretan). 1½. Purple. July. Crete. 1824.
— *flavum* (yellow). 2. Yellow. August. South Europe. 1640.
— *heterophyllum* (various-leaved). 2. Purple. June. Madeira. 1759.
— *marum* (marum). 1½. Pale purple. August. Spain. 1640.
— *orchideum* (orchis-like). 1. Pink. July. Chili. 1826.
— *pseudochamaepitys* (bastard ground-pine). ½. Purple. June. South Europe. 1820.
— *pumilum* (dwarf). ½. Purple. July. Spain. 1816.
— *regium* (royal). 1½. Purple. July. Spain. 1699.
— *trifidum* (three-cleft-leaved). 1½. Purple. July. Cape of Good Hope. 1791.

THAILIA. (Named after *J. Thailus*, a German physician. Nat. ord., *Marants* [Marantaceæ]. Linn., 1-*Monandria* 1-*Monogynia*. Allied to *Maranta*.)

Blue-flowered evergreens. Divisions; rich-sandy loam. *Geniculata* requires a cool plant, stove in winter; *dealbata*, a greenhouse, in a tub of water, or the roots in a pond out of doors, so deep that the frost will not reach them.

- T. dealbata* (white). 4. July. Carolina. 1791.
— *geniculata* (jointed). 2. August. W. Ind. 1823.

THALICTRUM. Meadow Rue. (From *thallo*, to grow green; the bright green colour of the young shoots. Nat. ord., *Crowfoots* [*Ranunculaceæ*]. Linn., 13-*Polyandria* 6-*Polygynia*.)

Hardy herbaceous perennials. Division of the plant in spring; sandy loam and a little leaf-mould. Beautiful for the back of herbaceous borders.

- T. acutifolium* (sharp-lobed). 1½. Pale yellow. June. Siberia. 1820.
- *alpinum* (alpine). ½. White, yellow. June. Britain.
- *anemonoides* (anemone-like). 3. April. N. Amer. 1768.
- — *flore-pleno* (double-flowered). ½. April. N. Amer. 1768.
- *angustifolium* (narrow-leaved). 3. Pale yellow. June. Germany. 1793.
- *apiculatum* (bee-like-flowered). Yellow. June. 1833.
- *appendiculatum* (appendaged). Russia. 1832.
- *aquilegifolium* (columbine-leaved). 3. Light purple. June. Austria. 1731.
- — *atro-purpureum* (dark purple). 3. Dark purple. June. Austria. 1731.
- — *formosum* (beautiful). 3. Purple. June. South Europe. 1800.
- *Calabriticum* (Calabrian). 3. Yellow. July. Sicily. 1800.
- *Carolinianum* (Carolina). 1. White. June. N. Amer. 1808.
- *chelidonium* (swallowwort). 2. Purplish. June. Nepaul. 1823.
- *cineereum* (grey). 2. Yellow. June. 1810.
- *clavatum* (club-leaved). 2. White. June. N. Amer. 1730.
- *collinum* (hill). 1½. Pale yellow. June. Europe. 1800.
- *concinnum* (neat). 3. White. Green. June.
- *contortum* (curled-seeded). 2. White. June. Siberia. 1796.
- *Cornuti* (Cornuti's). 3. White, yellow. May. N. Amer. 1806.
- — *revolutum* (curled-back). 1½. Light yellow. June. N. Amer. 1806.
- *crenatum* (scalloped-leaved). 5. Yellow. July. Europe. 1800.
- *cultratum* (knife-shaped). Green, yellow. June. Himalayas.
- *cynapifolium* (cynapinum-leaved). 2. Purple, yellow. June. Siberia. 1823.
- *dioicum* (dioecious). 1. Light yellow. June. N. Amer. 1759.
- *divaricatum* (straggling). 1½. Yellowish. June. Europe. 1819.
- *divergens* (spreading). 2. Yellow. June. Siberia. 1819.
- *clatum* (tall). 4. Light yellow. August. Hungary. 1794.
- — *ambiguum* (ambiguous). 2. Pale yellow. June. Switzerland. 1819.
- *exaltatum* (lofty). Siberia. 1832.
- *flavum* (common-yellow). 4. Orange. June. Britain.
- — *vaginatulum* (sheathed). 2. Yellow. June. Siberia. 1810.
- *flexuosum* (zigzag). 1½. Yellow. June. Germany. 1820.
- *foetidum* (stinking). 3. White, yellow. June. France. 1640.
- *foliolosum* (small-leafy). 2. Purple, yellow. June. Nepaul. 1819.
- *galioides* (galium-like). 1. Yellow. June. Alsace. 1816.

- T. glaucescens* (milky-greenish). 2. Green, yellow. June. Russia. 1818.
- *glaucum* (milky-green-leaved). 5. Yellow. June. Spain. 1798.
- *laserpitifolium* (laserpitium-leaved). 3. Yellow. June. Europe. 1810.
- *lucidum* (shining). 4. Yellow. June. Spain. 1739.
- *microcarpum* (small-podded). Russia. 1832.
- *minus* (less). 1. Pale yellow. June. Britain.
- *oligospermum* (few-seeded). 2. Purple, yellow. June. Siberia. 1820.
- *petaloidum* (petal-like). 3. White, yellow. June. Dauria. 1799.
- *pubescens* (downy). 1½. Pale yellow. June. Switzerland. 1819.
- *purpurea* (purplish). 3. Light purple. June. N. Amer. 1699.
- *rosmarinifolium* (rosemary-leaved). 2. Purple, yellow. June. South Europe. 1815.
- *rugosum* (wrinkly). 4. White, yellow. July. N. Amer. 1774.
- — *discolor* (two-coloured). 6. Yellow. June. N. Amer. 1810.
- *saxatile* (rock). 1½. White, red. June. Europe. 1819.
- *Schweiggeri* (Schweigger's). Yellow. June.
- *Sibiricum* (Siberian). 1. Lilac, yellow. June. Siberia. 1775.
- *simplex* (simple-stalked). 1. Lilac, yellow. May. Sweden. 1778.
- *sparsifolium* (scattered-flowered). Yellow. June. Siberia. 1838.
- *squarrosum* (spreading). 1. Yellow. June. Siberia. 1806.
- *stipulaceum* (large-stipuled). 2. White, yellow. June. Europe. 1820.

THAMNEA. (From *thamnos*, a shrub. Nat. ord., *Bruniads* [*Bruniaceæ*]. Linn., 5-*Pentandria* 1-*Monogynia*.)

Greenhouse evergreen shrub. Cuttings of the young shoots in sand, under a bell-glass, in April, and then set in a close pit; fibry, sandy peat, and a little charcoal and freestone. Winter temp., 40° to 48°.

T. uniflora (one-flowered). White. April. Cape of Good Hope. 1810.

THEA. Tea. (From *tcha*, the Chinese name for tea. Nat. ord., *Theads* [*Ternströmiaceæ*]. Linn., 16-*Monadelphia* 8-*Polyandria*.)

Greenhouse, white-flowered, evergreen shrubs. Cuttings of ripened young shoots, taken off at a joint, and inserted in silver sand, under a bell-glass, and placed in a close pit, the glass being opened at night to prevent damping; also by layers from shoots thrown up by the roots; also, we believe, by grafting the tenderer kinds on *viroidis*. Has the single Camellia been tried? Equal parts of fibry peat and sandy, turfy loam packed tight. Winter temp., 38° to 48°. As the roots run deep, they thrive best when planted out in a cool conservatory. Plants have survived many winters round London in the open ground with the protection of a mat in cold weather. *Thea viroidis* is maintained by many to be the only tea-plant used by the Chinese.

- T. Assamensis* (Assam). 6. January. Assam. 1846.
- *Bohea* (Bohea). 4. October. China. 1768.
- *viroidis* (green). 4. June. China. 1768.
- — *latifolia* (broad-leaved). 4. February. China. 1825.

THEEZAN TEA. *Rhamnus Theezana*,

THENA'DRIA. (Named after *M. Thenard*, a French chemist. Nat. ord., *Dogbanes* [Apocynaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*.)

Stove evergreen climber. Cuttings of stubby side-shoots in sand, under a bell-glass, and in heat; sandy, fibry loam and peat, with a little charcoal. Winter temp., 55° to 60°; summer, 65° to 85°.

T. floribunda (bundled-flowered). 10. Blue. Mexico. 1823.

THEOBRO'MA. Chocolate-tree. (From *theos*, a god, and *broma*, food; poetically, food for the gods. Nat. ord., *Byttneriads* [Byttneriaceæ]. Linn., 18-*Polyadelphia* 1-*Decundria*.)

The seed of *T. cacao* is the chief ingredient in chocolate and cocoa. Stove evergreen trees. Cuttings of half-ripened shoots in sand, under a bell-glass, in heat; fibry loam and sandy peat. Winter temp., 55° to 65°; summer, 65° to 88°.

T. bicolor (two-coloured). 15. Brown. New Grenada. 1820.

— *cacao*'o (common-cacao). 15. Brown. S. Amer. 1739.

— *Caribæa* (Caribbean). Yellow. W. Ind. 1821.

— *Guianensis* (Guiana). 16. Yellow. Guiana. 1803.

THEOPHRA'STA. (Named after *Theophrastus*, the father of natural history. Nat. ord., *Ardisiads* [Myrsinaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*.)

Stove white-flowered evergreens. Cuttings of ripe young shoots in sand, under a bell-glass, in heat; sandy loam and fibry peat. Winter temp., 50° to 58°; summer, 60° to 85°.

T. Jussieu'i (Jussieu's). 3. St. Domingo. 1818.

— *longifolia* (long-leaved). 20. Caraccas. 1828.

THERMOMETER. This instrument is the only unfailing guide for the gardener in regulating the heat to which he allows the roots and foliage of his plants to be subjected.

Fahrenheit's is used chiefly in Britain, Holland, and North America, the freezing point of water on which is at 32°; and its boiling point, 212°. *Reaumur's* thermometer was that chiefly used in France before the Revolution, and is that now generally used in Spain, and in some other continental states. In its scale the freezing point is 0°; and the boiling point, 80°. On *Celsius* or the *Centigrade* thermometer, now used throughout France, and in the northern kingdoms of Europe, the freezing point is 0°; and the boiling point, 100°. Hence, to reduce degrees of temperature of the Centigrade thermometer and of that of Reaumur to degrees of Fahrenheit's scale, and conversely:—

Rule 1. Multiply the Centigrade degrees by 9, and divide the product by 5;

or multiply the degrees of Reaumur by 9, and divide by 4; then add 32 to the quotient in either case, and the sum is the degrees of temperature of Fahrenheit's scale.

Rule 2. From the number of degrees on Fahrenheit's scale subtract 32; multiply the remainder by 5 for Centigrade degrees, or by 4 for those of Reaumur's scale, and the product, in either case, being divided by 9, will give the temperature required according to Fahrenheit's.

To ascertain the internal temperature of a hothouse, the thermometer should be fixed near its centre, against a pillar, and under a cupola, or little roof, shading it from the sun.

A self-registering thermometer should be in every house, for it shows the highest and lowest degrees of heat which have occurred in the twenty-four hours; and, therefore, serves as a check upon those to whose care they are intrusted.

Bregazzi's bark-bed thermometer is an excellent instrument for ascertaining the bottom-heat of hot beds, bark-pits, &c. It is a thermometer inclosed in a metal tube, perforated to admit the heat, pointed, so as to be easily thrust down, and with a small door in the side, for observing the degree of temperature shown by the scale.

THERMO'PSIS. (From *thermos*, a lupine, and *opsis*, like; lupine-like shrub. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 10-*Decandria* 1-*Monogynia*. Allied to *Piptanthus*.)

Hardy herbaceous yellow-flowered perennials. Chiefly by seeds sown in April; light, sandy loam.

T. Corgonensis (Corgon). 1. July. Altaia. 1820.

— *fabacea* (bean-like). 2. June. N. Amer. 1811.

— *lancoleta*'ta (spear-head-leaved). 1. June. Siberia. 1779.

THESPE'SIA. (From *thespesios*, divine; one of the trees often planted round places of worship in India. Nat. ord., *Mallowworts* [Malvaceæ]. Linn., 16-*Monadelphina* 8-*Polyandria*.)

Stove evergreen trees. Cuttings of stubby side-shoots in sand, in May, under a bell-glass, in bottom-heat; fibry, sandy loam, and a little leaf-mould. Winter temp., 48° to 55°; summer, 65° to 85°.

T. grandiflora (large-flowered). 30. Scarlet. Point Rico. 1837.

— *populinea* (poplar-leaved). 30. White. E. Ind. 1770.

— *Guadalupe'nsis* (Guadaloupe). 30. Guadaloupe.



THIBAUDIA. (Named after *Thiebaut de Berneaud*, a French botanist. Nat. ord., *Whortleberries* [Vacciniaceæ]. Linn., 8-*Ocandria* 1-*Monogynia*.)

Stove evergreens. Cuttings of half-ripe shoots in sand, under a bell-glass, and in moist heat; sandy loam and fibry peat. Winter temp., 50° to 60°; summer, 60° to 85°.

T. macrantha (large-flowered). White, yellow, red. December. Moulmein. 1849.

— *macrophylla* (large-leaved). White. E. Ind.

— *microphylla* (small-leaved). 2. September. Peru. 1847.

— *puleherrima* (beautiful). 10. Red, green. May. India. 1845.

— *glabra* (smooth). 6. Deep rose. September. Columbia.

— *setigera* (hristly). Scarlet. Khooseea. 1837.

— *vaccinifolia* (cranberry-like). Khooseea. 1837.

— *variegata* (variegated). Scarlet. Khooseea. 1837.

THINNING. The exhaustion consequent upon the production of seed is a chief cause of the decay of plants. This explains why fruit-trees are weakened or rendered temporarily unproductive, and even killed, by being allowed to ripen too large a crop of fruit, or to "overbear themselves."

The thinning of fruit is, consequently, one of the most important operations of the garden, though one of the least generally practised. It is equally important to be attended to in all fruit-bearers, but especially the vine, nectarine, peach, apricot, apple, and pear. It should be done with a bold, fearless hand; and the perfection of that which is allowed to remain will amply reward the grower, in harvest time, for the apparent sacrifice made. But he will not reap his reward only in this year, for the trees, thus kept unweakened by over-production, will be able to ripen their wood, and deposit their store of sap in their vessels, so absolutely necessary for their fruitfulness next season.

Thinning is a most necessary operation with plants as well as with the fruit they bear. The roots of a plant extend in a circle round it, of which the stem is the centre. If the roots of adjoining plants extend within each other's circle, they mutually rob of nutriment, and check each other's growth. Thinning in the seed-bed is generally applied with too timid a hand.

THISTLE. *Carduus*.

THOMASIA. (Named after *Messrs. Thomas*, two brothers, collectors of Swiss plants. Nat. ord., *Byttneriads* [Byttneriaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Lasiopetalum*.)

Greenhouse, New Holland, evergreen shrubs. Cuttings of firm, stubby, young side-shoots in

sand, under a bell-glass, in April; sandy, fibry loam and peat, with a little charcoal and broken pots, and pots extra well-drained. Winter temp., 40° to 45°; a sheltered, airy place in summer.

T. canescens (hoary). - Purple. June. 1835.

— *diffusa* (straggling). White. April. 1822.

— *dumosa* (bushy). 2½. White. May. 1826.

— *foliosa* (leafy). 3. June. 1823.

— *glutinoso* (clammy). Red. May. 1842.

— *grandiflora* (large-flowered). Red. 1840.

— *paniculata* (panicked). Red. June. 1842.

— *pauciflora* (few-flowered). Red. June. 1848.

— *purpurea* (purple). 3. Purple. June. 1803.

— *quercifolia* (oak-leaved). 3. Purple. May. 1803.

— *salandacea* (potato-like). 3. White. June. 1803.

— *stipulacea* (large-stipuled). 3. Red. 1842.

— *triphylla* (three-leaved). 3. June. 1824.

THORN-APPLE. *Datura*.

THOROUGH-WAX. *Bupleurum rotundifolium*.

THOU'NIA. (Named after *A. Thouin*, professor of agriculture, &c., in Paris. Nat. ord., *Soapworts* [Sapindaceæ]. Linn., 8-*Ocandria* 1-*Monogynia*. Allied to *Nephesium*.)

Stove evergreen shrub. Cuttings of firm side-shoots in sand, under a bell-glass, in heat; sandy, fibry loam and a little peat or leaf-mould. Winter temp., 50° to 55°; summer, 60° to 85°.

T. pinnatifida (leafleted). 8. White. New Spain. 1823.

THRIFT. (*Statice*.) See **EDGING**.

THRINAX. (From *thrinax*, a fan; shape of the leaves. Nat. ord., *Palms* [Palmaceæ]. Linn., 6-*Hexandria* 1-*Monogynia*.)

Stove Palm. Seeds in a moist, sweet hotbed, in spring; rich, loamy soil. Winter temp., 55° to 60°; summer, 60° to 90°.

T. parviflora (small-flowered). 15. White, green. Jamaica. 1778.

THRIPS. *Thrips Adonidum* is one of the worst pests that can gain a footing in our stoves and greenhouses. The larvæ and pupæ are yellowish-white, and the perfect insect is of a dull, deep black, with the point, and sometimes the whole of the abdomen, of a rust colour; the wings are dirty white; the horns and legs yellowish, the extremity of the former black. It attacks plants by piercing the under side of the leaves; and one often sees, at the tip of the tail, a globule of blackish fluid, which it soon deposits, and, by innumerable spots of this glutinous matter, the pores of the leaves are stopped up, and large portions of the surface become blotched. During March the full-grown larvæ and pupæ, which are as large as the perfect insect, are found in groups, feeding on the under side of the leaves; and at this time the recently-hatched but perfect insect either

lies close under the ribs, or roves about in search of a mate (*Curtis*). Flowers of sulphur have been recommended as destructive of this plague, but we believe that Scotch snuff, applied by means of a dredging-box (perhaps Brown's Fumigator would answer), is as effectual an application as any. Prevention, however, is better than cure; and if the plants are kept healthy by due ventilation, and by moisture both in the air and soil, this insect may be usually banished.

T. ochraceus infests the ripe fruit of plums, peaches, and nectarines, piercing the stalks, and causing their fall, and rendering the fruit disgusting. It was first noticed and described by Mr. Curtis. It is narrow and linear, of a bright and deep ochreous colour, the eyes are black, the horns appear to be only six jointed and brownish at the tips, it has three ocelli in the crown, the body is hairy, the tip pointed and bristly, the wings are shorter than the body in the male, lying parallel on the back when at rest, narrow, especially the under ones, and fringed, the hairs longest beneath and at the point, tips of feet dusky. It is destroyed by the same means as *T. Adonidum*.

THROATWORT. *Campa'nula cervica'ria*, *Campa'nula trache'lim*, and *Trache'lim*.

THRYA'LLIS. A synonyme of Galphimia. The following should be added to to that genus:—

G. brachystachys (short-spiked). 4. August. Rio Janeiro. 1823.

THU'JA. Arbor Vitæ. (From *thyon*, a sacrifice; the resin used as incense in eastern sacrifices. Nat. ord.; *Conifers* [Pinaceæ]. Linn., 21-Monæcia 10-Decandria.)

Hardy evergreen trees. Seeds, which ripen freely, or by cuttings; the seeds are best sown in April, slightly covered, and if a frame or hand-light can be set over them, all the better; moist soil suits most of them; a few of the tenderest will require protection until they become some size.

T. articulata (jointed). 15. March. Barbary. 1815.
— *australis* (southern). 20. May. South Europe. 1820.

— *Chilense* (Chilian). 30. Chili.
— *cupressoides* (cypress-like). 10. Cape of Good Hope. 1799.

— *Doniana* (Don's). 60. New Zealand. 1847.
— *filifolmis* (thread-leaved). May. 1838.

— *Nepalensis* (Nepaul). 20. May. Nepaul. 1824.
— *occidentalis* (western. American). 50. May. N. Amer. 1596.

— *variegata* (variegated-leaved). 25. May.
— *orientalis* (eastern. Chinese). 25. May. China. 1752.

— *stri'cta* (erect). 20. May. Italy. 1824.
— *Tatarica* (Tartarian). 12. May. Tartary. 1820.

T. pendula (drooping-branched). 20. May. Tartary. 1828.

— *placata* (plaited). 20. May. Nootka Sound. 1796.

— *tetragona* (four-sided). 80. Patagonia.

THUNBERGIA. (Named after C. P. Thunberg, the celebrated botanist. Nat. ord., *Acanthads* [Acanthaceæ]. Linn., 14-Didynamia 2-Angiospermia.)

Stove evergreen climbers. Seeds in early spring, in a strong, moist, sweet hotbed; cuttings, any time before the end of August, in sandy soil, under a bell-glass; fibry loam and peat, with a little rotten dung and lime-rubbish. Winter temp., 48° to 60°; summer, 60° to 80°. As they are very subject to red spider, perhaps the best mode of treating these fine plants is to grow them as annuals, throwing the plants away in the end of autumn. If preserved, the flowers of sulphur and the syringe must hardly ever have a holiday. Indeed, the syringe and a little shade are necessary to their health in summer.

T. alata (winged). 4. Yellow. June. E. Ind. 1823.

— *alba* (white-flowered). 4. White. May. Mada'ascar.

— *auranti'ca* (orange-flowered). 4. Orange. May.

— *angulata* (angular). 4. June. Madagascar. 1823.

— *Cape'nsis* (Cape). 3. Yellow. June. Nepaul. 1824.

— *chrysops* (golden-eyed). 3. Blue. Violet. June. Sierra Leone.

— *coccinea* (scarlet). 4. Scarlet. June. Trinidad. 1823.

— *cordata* (heart-leaved). 3. White. June. E. Ind. 1820.

— *fragrans* (fragrant). 4. White. June. E. Ind. 1796.

— *grandiflora* (large-flowered). 6. Blue. June. E. Ind. 1820.

— *Hawlayneana* (Hawtayne's). 10. Scarlet. June. Nepaul. 1826.

THYMERA. (An ancient name applied to a thyme-like plant. Nat. ord., *Lipworts* [Lamiaceæ]. Linn., 14-Didynamia 1-Gymnospermia. Allied to Melissa.)

Half-hardy evergreens. Seeds in April, or cuttings under a hand-light in June; sandy, gravelly loam. Nice rock-work plants. *Ciliata* is the prettiest; require a cold pit in winter.

T. ciliata (hair-fringed). 1. Vermilion. July. South Europe. 1824.

— *spicata* (spike-flowered). 14. Pale purple. June. Levant. 1699.

THYMUS. Thyme. (From *thuo*, to perfume. Nat. ord., *Lipworts* [Lamiaceæ]. Linn., 14-Didynamia 1-Gymnospermia.)

Hardy evergreen trailers, and purple-flowered, except where otherwise mentioned. Seeds, cuttings, or divisions in March or April; sandy loam suits them all best. *T. vulgaris* is our common pot-herb thyme. For culture, see SAGE.

T. angustifolius (narrow-leaved). 4. June. South Europe. 1771.

— *Azoricus* (Azorean). July. Azores. 1820.

— *azur'cus* (azure). 4. June. South Europe. 1830.

— *capitata* (headed). June. South Europe. 1596.

— *cephalotes* (great-headed). 3. July. Portugal. 1759.

— *ciliatus* (hair-fringed). Violet. July. N. Africa. 1824.

- T. Corsicus* (Corsican). Lilac. Corsica. 1831.
 — *Croaticus* (Croatian). 1. July. Hungary. 1802.
 — *elongatus* (lengthened). 1. August. 1816.
 — *ericifolius* (heath-leaved). $\frac{3}{4}$. July. Spain. 1806.
 — *fruticulosus* (shrubby). 1. July. Sicily. 1822.
 — *glabratulus* (smooth). $\frac{3}{4}$. July. South Europe. 1823.
 — *hirsutulus* (hairy). $\frac{3}{4}$. July. Spain. 1821.
 — *lanceolatus* (spear-head-leaved). $\frac{3}{4}$. July. N. Africa. 1823.
 — *Pannonicus* (Pannonian). $\frac{4}{5}$. July. Crimea. 1817.
 — *piperella* (small peppermint). $\frac{3}{4}$. July. Spain. 1810.
 — *serpyllum* (wild-thyme). $\frac{3}{4}$. July. Britain.
 — *albus* (white-flowered). $\frac{3}{4}$. July. Britain.
 — *citratulus* (citron-scented). July.
 — *lanuginosus* (woolly). $\frac{3}{4}$. July. Britain.
 — *montanus* (mountain). $\frac{3}{4}$. Striped. June. Hungary. 1806.
 — *variegatus* (variegated-leaved). $\frac{3}{4}$. July. Britain.
 — *vulgaris* (common). July. Tauria. 1820.
 — *spicatus* (spiked). 1. June. Pyrenean. 1832.
 — *vulgaris* (common-garden). 1. June. South Europe. 1848.
 — *latifolius* (broad-leaved). 1. June.
 — *variegatus* (variegated-leaved). 1. July. Britain.

THYRSACANTHUS. (From *thyrs*, a thyrs, and *acanthus*; thyrs-flowered Acanthus. Nat. ord., *Acanthads* [Acanthaceæ]. Linn., 2-*Diandria* 1-*Monogynia*.)

Stove evergreen shrub. For culture, see **SALPIXANTHA**. It must be spurred in closely. Flowers nearly all the year.

T. Schomburgkianus (Schomburgk's). 3. Scarlet. New Granada. 1855.

THYSANOTUS. (From *thysanotos*, fringed; the flower much fringed. Nat. ord., *Lily-worts* [Liliaceæ]. Linn., 6-*Hexandria* 1-*Monogynia*.)

Greenhouse, purple-flowered, from New Holland. By division of the plant in the herbaceous, and dividing the tuberous-rooted; sandy loam and leaf-mould. Winter temp., 35° to 45°, and very little water.

GREENHOUSE HERBACEOUS.

- T. intricatus* (intricate-stemmed). $\frac{3}{4}$. July. 1839.
 — *juvnceus* (rush-like). $\frac{3}{4}$. 1804.
 — *proliferus* (proliferous). 1. August.
 — *tennis* (slender). Lilac. May. 1836.

GREENHOUSE TUBERS.

- T. elatior* (taller). 1. August. 1823.
 — *isanthus* (even-anthered). $\frac{3}{4}$. August. 1822.
 — *tuberosus* (tuberous). 1. June. 1825.

TIARELLA. (From *tiara*, a little diadem; form of seed-pod. Nat. ord., *Saxifragas* [Saxifragaceæ]. Linn., 10-*Decandria* 2-*Digynia*.)

Hardy, white-flowered herbaceous. Divisions of the root; common soil; dry borders, and the front of them, or elevated places in rock-works.

- T. cordifolia* (heart-leaved). $\frac{3}{4}$. April. N. Amer. 1731.
 — *Menziesii* (Menzies'). 1. April. N. Amer. 1812.
 — *polyphylla* (many-leaved). 1. April. Nepaul. 1820.

TIARIDRUM. (From *tiara*, a diadem, and

eidos, like; form of seed-pod. Nat. ord., *Ehretiads* [Ehretiaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to the *Heliotrope*.)

Annuals. Seeds in a slight hotbed at the end of March, pricked off, and planted out towards the end of May. Perhaps *anisophyllum* will require a warm corner, or to be bloomed in a pot, in the greenhouse.

T. anisophyllum (anise-leaved). White. June. Africa. 1822.

- *Indicum* (Indian). 1. Blue. June. W. Ind. 1820.
 — *velutinum* (velvet). 1. Blue. June. W. Ind. 1820.

TIBOUCHANA. (The native name in Guiana. Nat. ord., *Melastomads* [Melastomaceæ]. Linn., 8-*Octandria* 1-*Monogynia*. Allied to *Osbeckia*.)

Stove evergreen. Cuttings of firmish side-shoots in sand, under a bell-glass, and in a mild bottom-heat, any time between April and August; fibry peat and sandy loam, with a little charcoal and broken pots, and extra care in draining. Winter temp., 55° to 60°; summer, 65° to 85°.

T. aspera (rough). Purple. April. Guiana. 1820.

TICO'REA. (The native name of *T. foetida*. Nat. ord., *Rue-worts* [Rutaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Galipea*.)

Stove, white-flowered, evergreen trees. Cuttings of ripe young shoots in sand, under a bell-glass, in heat, in March; fibry loam and sandy peat. Winter temp., 50° to 55°; summer, 60° to 80°.

- T. foetida* (stinking). 10. Guiana. 1825.
 — *jasmiflora* (jasmine-flowered). 20. Brazil. 1827.

TIGRIDIA. Tiger Flower. (From *tigris*, a tiger, and *eidos*, like; resemblance of the spotted flowers. Nat. ord., *Irids* [Iridaceæ]. Linn., 3-*Triandria* 1-*Monogynia*.)

Having yielded to cross-breeding, this genus may be expected to run into varieties of very gay colours. Hardy bulbs, from Mexico. Seeds in a slight hotbed, in spring; also by offsets; sandy loam and leaf-mould; protected in the ground from frost and wet, or taken up at the end of autumn, and kept in a dry, cool place, the roots being covered with earth until planting-out time in the middle of April.

T. conchiflora (shell-flowered). 1. Dark yellow. June. 1823.

- *lutæa* (yellow). Yellow. June.
 — *pavonia* (peacock). 1. Orange, red. June. 1796.
 — *leo'na* (lion). 1. Orange, red. June. 1823.
 — *violacea* (violet-coloured-flowered). 1. Purple. May. 1838.

TILE-ROOT. *Geissorhiza*.

TILIA. Lime or Linden-tree. (Derivation unknown. Nat. ord., *Lindenblossoms* [Tiliaceæ]. Linn., 13-*Polyandria* 1-*Monogynia*.)

Hardy, deciduous, yellowish-green-flowered trees. Seeds, gathered and preserved in moist sand until March or April, and then some will generally vegetate that and the following season; principally, however, by layers in autumn, which may be removed in a twelvemonth. To save layering, old trees are sometimes cut down;

shoots spring up in abundance; among these six inches or a foot of fine soil is thrown, and in two or three years nice-rooted plants are obtained. Deep, loamy soil suits all the varieties, as well as the species, best. The *white lime* is propagated chiefly by layers and grafting. The *America'na* and its many varieties are very ornamental, but not so hardy as the European in our moist climate.

T. a'lba (white-wooded). 30. July. Hungary. 1767.

— *America'na* (American). 30. June. N. Amer. 1752.

— *heterophylla* (various-leaved). 30. July. N. Amer. 1811.

— *laxiflora* (loose-flowered). 50. White. June. N. Amer. 1820.

— *pubescens* (downy). 20. July. N. Amer. 1726.

— *pubescens leptophylla* (thin-leaved-downy). 20. Yellow. July. N. Amer.

— *Europa'ea* (European, or common). 50. July. Britain.

— *aurca* (golden-twiggcd). 50. August. Britain.

— *dasy'style* (hairy-styled). 50. July. Tauria.

— *lacinia'ta* (cut-leaved). 50. August. Britain.

— *microphylla* (small-leaved). 50. August. Britain.

— *pendula* (drooping). June. 1845.

— *platyphylla* (broad-leaved). 50. August. Britain.

— *platyphylla aurca* (golden-broad-leaved). 20. Britain.

— *rubra* (red-twiggcd). 50. August. Britain.

— *variegata* (variegated-leaved). June. 1847.

— *vitifolia* (vine-leaved). June. 1846.

TILLANDSIA. (Named after *E. Tillands*, physician at Abo. Nat. ord., *Bromelworts* [Bromeliaceæ]. Linn., 6-*Hexandria* 1-*Monogynia*.)

Stove epiphytes. Divisions and suckers. The weaker kinds do best in baskets very shallow, in sphagnum, turfy peat, broken pots, and charcoal; the stronger-growing ones may be potted high in turfy peat, a little turfy loam, and charcoal. Winter temp., 55° to 60°; summer, 60° to 80°.

T. acutilis (stemless). ½. White. August. Rio Janeiro. 1826.

— *zebrina* (zebra). ½. White. August.

— *aloifolia* (aloe-leaved). 1. Pink. November. Trinidad. 1824.

— *d'nceps* (two-edged). ½. Blue. April. W. Ind. 1820.

— *angustifolia* (narrow-leaved). ½. Blue. August. W. Ind. 1822.

— *Bartramia* (Bartram's). 1. Blue. April. Carolina. 1825.

— *bractea'ta* (bracted). 1. August. W. Ind. 1824.

— *bulbosa* (bulbous). ½. Blue. November. Trinidad. 1823.

— *picta* (painted). ½. Pink. December. Jamaica. 1845.

— *cane'scens* (hoary). ½. Blue. June. W. Ind. 1824.

— *coarcta'ta* (straitened). 1. June. Chili. 1823.

— *compressa* (flattened). 1. June. Chili. 1823.

— *fasciculata* (fascicled). 1. Blue. June. W. Ind. 1820.

— *flexuosa* (zigzag). 1. Blue. W. Ind. 1790.

— *palida* (pale). 1. Yellow. June. W. Ind. 1815.

— *Gardneri* (Gardner's). Rose. February. Brazil. 1842.

— *gracilis* (slender). 1. June. Chili. 1823.

— *nitida* (shining). 2. Blue. October. Jamaica. 1823.

— *nutans* (nodding). 2. Blue. August. Jamaica. 1793.

T. obscura (obscure). 2. July. S. Amer. 1820.

— *paniculata* (panicked). 1. Blue. June. W. Ind. 1820.

— *polystachya* (many-spiked). 2. June. S. Amer. 1825.

— *psittacina* (parrot-like). Scarlet. July. Rio Janeiro. 1826.

— *pu'chra* (fair). ½. Pink. October. Trinidad. 1823.

— *ramosa* (lanchy). 1. June. Chili. 1823.

— *recurva'ta* (curled-back-leaved). ½. Purple. July. Jamaica. 1793.

— *rigida* (stiff). 1. June. Chili. 1823.

— *ro'sea* (rosy). 1. Pink. Brazil.

— *rubida* (madder-coloured). ½. Red, yellow. February. Brazil. 1840.

— *serrata* (saw-leaved). 2. Yellow. June. Jamaica. 1793.

— *setacea* (bristly). ½. Blue. June. W. Ind. 1824.

— *stricta* (erect). ½. Blue. September. Brazil. 1810.

— *tenuifolia* (slender-leaved). ½. Blue. June. W. Ind. 1825.

— *usneoides* (usnea-like). 6. Purple. July. W. Ind. 1823.

— *utriculata* (bladdered). 2. Purple, yellow. S. Amer. 1793.

— *vitellina* (yolk-of-egg-coloured). Yellow. February. Venezuela.

— *xiphoides* (xiphium-like). ½. White. July. Buenos Ayres. 1810.

TINEA. A genus of moths, the larvæ of which are very destructive.

T. dauce'la. Carrot Moth. Head and back and upper wings reddish brown; abdomen grey and white. Its caterpillar is greenish grey, with black tubercles, and lives on the flowers and seeds of the carrot, but prefers the parsnip.

T. padella. Small Ermine Moth, is white, with black dots on the upper wings. Eggs deposited in June and July near the blossom-buds of the hawthorn, euonymus, apple, and pear-tree. Caterpillars appear in autumn, and inclose the twigs with a web. In the following spring they attack the petals and calyx. Colour, dull lead, with a black head.

T. derckella. Pear-tree Blister Moth. The caterpillars of this raise dark-brown blisters on the leaves of the pear-tree, and less often on those of the apple. The moth is active and minute, shining like pearly satin, the wings having an orange ground, spotted with black and other colours. It appears in May. Mr. Curtis says, "To check this disease, it will be advisable to wash the tree with soapsuds the end of May or beginning of June, when the moths are pairing and laying eggs for a future progeny; and if a very valuable tree be only partially attacked, the blistered leaves might be gathered and burnt as soon as any spots began to appear in August."

T. capitella. Triple-spotted Currant Tinea. The larvæ of this feed upon the pith

of the young shoots of the currant, which they attack in the spring. The moth itself is fuscous; the head with an ochreous tuft; superior wings bronzed, spotted with purple and yellow.

T. poretella, Rocket or Grey-streak Moth, has its habits and forms thus described by Mr. Curtis:—

During the middle and latter end of April, as the shoots of the rockets advance, it is found that the leaves adhere firmly together, and those that liberate themselves are perforated with large holes. On forcibly opening a shoot (for the young leaves are connected by silken threads), a small green caterpillar of different shades, varying with its age, is found in or near the centre, feeding upon the tender leaves, and sometimes a little family of four or five inhabit the same head. The head, feelers, and horns of our little moth are white, the latter with a few black spots near the tips; the thorax is cream-coloured, the sides brown, upper wings lance-shaped, very pale clay brown, with whitish streaks. Perhaps the best mode of extirpating them would be to search for the young caterpillars between the leaves on the first symptoms of their presence, and extracting them with a small pair of forceps, such as are used for microscopic objects; but as some might be too minute at that early period to be detected on the first search, this operation must be repeated. Pinching the maggots in the bud is also recommended.

T. corticella. See APPLE.

TIPULA. Crane-Fly, or Daddy-long-legs. *T. oleracea*, the grubs, or "leather-jackets," so injurious to the market-gardener, are its larvæ. They attack the roots of scarlet beans, lettuces, dabbias, potatoes, &c., from May to August. During the last month and September they become pupæ. Mr. Curtis observes, that it is said that lime-water will not kill them, and suggests that if quick-lime was scattered on the ground at night, it would destroy them when they come to the surface to feed; and all the gnats that are found on the walls, palings, ground, or elsewhere, should be killed, especially the female, which would prevent any eggs being deposited in the ground. A mixture of lime and gas-water, distributed by a watering-pot over grass, has completely exterminated the larvæ where they had been exceedingly

destructive; and by sweeping the grass with a bag-net, like an angler's landing-net, only covered with canvass, immense numbers of the gnats might be taken and destroyed.

TITHONIA. (From *Tithonus*, in mythology, the favourite of Aurora. Nat. ord., *Composites* [Asteracæ]. Linn., 19-*Syngenesia* 3-*Frustranea*. Allied to *Helianthus*.)

Stove, yellow-flowered evergreens, from Mexico. Cuttings of young shoots, a little firm at their base, in sand, under a bell-glass, and in a little bottom-heat; rich, sandy, fibry loam. Winter temp., 50° to 55°; summer, 60° to 80°.

T. excelsa (tall). August. 1824.

— *ovata* (egg-leaved). 4. July. 1823.

— *tugetiflora* (marigold-flowered). 10. August. 1818.

TOAD-FLAX. *Lindlaria*.

TOBACCO, (*Nicotia'na*), whether in the form of snuff, or its decoction in water, or its smoke whilst burning, is very destructive to insects.

Tobacco-paper is paper saturated with the decoction of tobacco, and when burnt emits a fume nearly as strong. It is an easy mode of generating the smoke. Whenever plants are smoked they should be done so on two following nights, and then be syringed the following morning. Mr. Cameron says:—I have always found tobacco-paper the most efficacious substance to fumigate with for destroying the aphids without doing any injury to the plants. If the house is not filled too rapidly with smoke, and is allowed to reach the glass without coming in contact with any of the plants, it then descends as it cools, without doing any injury. Plants fumigated in frames, or under hand-glasses, are most liable to be injured by the heat of the smoke, if not done cautiously. There is a spurious kind of tobacco-paper sometimes offered in spring by the tobaccoists, apparently made to meet the increased demand, and this kind of paper will bring the leaves off plants, without killing many of the aphides. It is of a lighter colour than the genuine sort, and may be readily detected by the smell being very different. Foliage should be perfectly dry when a house is fumigated, and should not be syringed till next morning. If plants are syringed immediately after fumigation, many of the aphides will recover even when they have dropped off the plants, a fact which any one may soon prove after fumigating a house.

Another very simple mode of fumigating

plants in frames, and under hand-glasses turned over them for the purpose, is as follows :—"Dissolve a table-spoonful of saltpetre in a pint of water; take pieces of the coarsest brown paper, six inches wide and ten inches long, steep them thoroughly in the solution, dry them, and keep till wanted. To fumigate, roll one of the pieces into a pipe like a cigar, leaving the hollow half an inch in diameter, which fill with tobacco, twist one end and stick it into the soil, light the other, and it will burn gradually away for an hour or more."

Tobacco-smoke should not be admitted to fruit trees when in bloom, nor when the fruit is ripening, as it imparts to them a flavour. See FUMIGATING and FUMIGATOR.

Tobacco-water is usually made from what is known as *Tobacconists' Liquor*, being a liquor expressed by them, and full of ammonia and the acrid oil of the plant. To every gallon of this add five gallons of water. This mixture with Read's garden-syringe may be sprinkled over the trees, putting it on with the finest rose, and being careful to wet all the leaves. This operation is to be performed only in the hottest sunshine, as the effect is then much greater than when the weather is dull; five gallons of liquor reduced as above stated cleanses seventeen peach and nectarine-trees, averaging seventeen feet in length, and twelve in height. The black, glutinous *aphis*, provincially called blight, so destructive to the cherry-trees, and, in fact, every species of *aphis*, is destroyed in the same way with equal facility. The grubs which attack the apricot may be destroyed almost instantly by immersing the leaves infested in this liquor.

As the tobacconist's liquor cannot be obtained always, tobacco-water may be, in such case, made by pouring half a gallon of boiling water upon one ounce of strong tobacco, and allowing it to remain until cold, and then strained.

TOCOYE'NA. (Name in Guiana. Nat. ord., *Cinchonads* [Cinchonaceæ]. Linn., 5-Pentandria 1-Monogynia. Allied to *Posoqueria*.)

Stove evergreen shrub. Cuttings of half-ripened shoots in sandy soil, under a glass, in heat, in May; fibry peat, a little lumpy loam, sand, and charcoal. Winter temp., 50° to 60°; summer, 60° to 85°.

T. longiflora (long-flowered), 6. Yellow, Guiana. 1826.

TODDA'IA. (*Toddali*, the Malabar name of *T. aculeata*. Nat. ord., *Xanthoxyls* [Xanthoxylaceæ]. Linn., 21-Monœcia 5-Pentandria. Allied to *Ptelea*.)

Stove white-flowered evergreens. Cuttings of young, stubby side-shoots in sand, under a glass, in April, in a sweet bottom-heat; fibry loam and a little peat or leaf-mould. Winter temp., 50° to 60°; summer, 60° to 80°.

T. aculeata (prickly), 6. E. Ind. 1790.

— *angustifolia* (narrow-leaved), 6. Mauritius. 1824.

TO'DEA. (Named after *H. J. Tode*, a German student of Ferns. Nat. ord., Ferns [Polypodiaceæ]. Linn., 24-Cryptogamia 1-Filices. Allied to *Osmunda*.)

Greenhouse, brown-spored Ferns. See FERNS. *T. Africa'na* (African), 2. June. Cape of Good Hope. 1805.

— *australis* (southern), N. Holland. 1831.

— *peltocida* (transparent), New Zealand. 1842.

TOFIELDIA. (Named after *Mr. Tofield*, a botanical patron. Nat. ord., *Melanths* [Melanthaceæ]. Linn., 6-Hexandria 1-Monogynia.)

Hardy, North American, herbaceous perennials. Division of the roots in spring; sandy loam and a little vegetable mould.

T. glutinosa (clammy), 3. White. 1825.

— *pubens* (downy), Green, yellow. July. 1840.

— *pubescens* (downy), 3. White. April. 1790.

TO'LEPIS. (Meaning not known. Nat. ord., *Composites* [Asteraceæ]. Linn., 19-Syngenesia 1-Æqualis. Allied to *Catananche*.)

Hardy, yellow-flowered annuals, from the South of Europe. Seeds in flower-beds or borders in April.

T. altissima (tallest), 4. June. 1823.

— *barbata* (bearded-purple-eyed), 2. Yellow, purple. June. 1820.

— *coronopifolia* (buckhorn-leaved), 1. June. 1777.

— *grandiflora* (large-flowered), June. 1830.

— *umbellata* (umbelled), 2. Yellow, purple. 1820.

— *virgata* (twiggy), 2. 1818.

TOLU BALSAM-TREE. *Myrospermum*.

TOMATO. (*Lycopersicum*.) See LOVE-APPLE.

TONGUE VIOLET. *Schweiggeria*.

TONQUIN BEAN. *Dipterix*.

TOOL-HOUSE. Upon this too-neglected garden edifice, Mr. Barnes, of Bicton Gardens, says :—"Have a place for everything, and everything in its place; kept in good condition, and at all times put away clean; for omission of which have rules and fines placed in each of the tool-houses, regularly enforced, and payment demanded for each fine on the labourers' pay-day. At Bicton, a book is kept for entering each fine, and a separate account given of each fine,

and for what, or why, it was enforced; annually, Lady Rolle doubles the amount so collected, and if good order has been kept, and only a small sum so collected, her ladyship trebles the amount. I add my own mite, and each foreman his, as a sort of compound for any matter that may have slipped our memories, &c.; the amount is then placed in the *Savings Bank*, as a reserve sum in case of illness, &c. We have the same order and regulation kept in each tool-shed—that is to say, the tool-shed of each department—that I need here describe only one. The tool-shed of the hothouse and flower-garden department is a lean-to shed at the back of a hot house, substantially built, and covered with slate; length, fifty-four feet; width, thirteen feet; height at back, fifteen feet; and height at front, nine feet; paved all through with Yorkshire flag-stones, which are neatly swept up every night, the last thing, and washed every Saturday thoroughly. There is a door at each end, and one in the centre of the front wall, and a window on each side of the centre door. Strong beams are thrown across from front to back, and strong planks laid on them, which form a useful loft for placing mats, stakes, laths for tally-making, brooms, nets, canvass for covering and shading, &c., &c. Within two feet of the roof, against the back wall, is placed a row of pegs the whole length of the shed, for hanging the long-handled tools, such as grass and leaf rakes, long-handled Dutch hoes, and iron rakes, &c.; on the next row of pegs, the whole length of the shed, are placed the various kinds of draw hoes, tan forks, dung forks and prongs, strong forks for digging and surface-stirring, spades and shovels of various kinds, pickaxes, mattocks and bills, dung drags, edging shears, &c.; on a third row of pegs, still lower, are placed the water-pots, all numbered, with initials as well, thus—B, G—45, or 60, whatever the number may run to; underneath those is a row more of pegs, for placing the noses of the water-pots—thus the back wall is furnished. The front wall, half-way, is furnished with shelves for placing shreds and nails, rope yarn, tallies, flower-pegs, whetstones, rubber or scythe-stones, and many other small articles. Underneath those shelves are pegs for hanging the hammers, axes, saws, hatchets, mallets, and stake-drivers, trowels, hand-forks, reels and lines,

hedge-clipping shears, scythes, chisels, the various sizes of one-handed crane-necked hoes, crowbars, mops, hair-brushes, and brooms, and various other articles. The scythes are hung up over the end beam, and on the other side, without shelves, the hand-barrows are placed; birch and heath brooms, both round and fan-shaped, that are in daily use; and various other articles. The garden rules are hung in a conspicuous place; also in the tool-house. Every tool is to be put into its proper or allotted place every night thoroughly cleansed, any omission of which subjects the defaulter to a fine. Each tool-house is under the same system. We have separate wheelbarrow sheds; sheds for placing soils in the dry, arranged in old casks; varieties of sand, pebbles, and flints, for potting purposes, with loft over for flower-pot stowage; a shed for the liquid-manure casks, which is one of the most essential and valuable of all. A shed for placing the charred articles of all kinds, equal to the last; a potting shed; mushroom shed; stove shed; fruit rooms, and onion lofts, &c., &c. Each and all are kept under the above regulations."

TOOTH-ACHE-TREE. *Zanthoxylum*.

TOOTHWORT. *Dentaria*.

TOP-DRESSING. Manure spread over the surface whilst the crop is growing.

TORCH-THISTLE. *Ce'reus*.

TORRENTIA. (Named after *Rev. O. Toran*, a Swedish botanist. Nat. ord., *Figworts* [*Scrophulariaceæ*]. Linn., 14-*Didynamia* 2-*Angiospermia*.)

Stove evergreens. Cuttings of the points of shoots, or small side-shoots, in sandy soil, and in a little heat; if far enough from the glass of the frame or pit, they will want no bell-glass; fibry loam and sandy peat in equal proportions, with another part made up of dried old cow-dung, charcoal, and rough sand. Winter temp., 42° to 50°; summer, 60° to 80°.

T. Arrucanensis (Arracan). Deep purple. June.

1846.

— *Asia'tica* (Asiatic). 1½. Purple. June. E. Ind. 1845.

— *co'ncolor* (one-coloured). 1½. Purple. July. China. 1844.

— *cordifo'lia* (heart-leaved). ½. Lilac. July. E. Ind. 1811.

— *edenta'ta* (toothless). 1. Purple. June. E. Ind. 1845.

— *hirsu'ta* (hairy). White. June. E. Ind. 1823.

— *sca'bra* (rough-leaved). 1. Pale blue. June. Moreton Bay. 1830.

TO'RTRIX. A genus of moths.

T. luscana generates a red grub, and *T. cynosbana* a black-spotted, green grub, both very destructive of blossom-buds.

T. vitisana. Vine Tortrix. Found on

the vine in April and May; head yellow; upper wings marbled with rusty and grey colours. Caterpillars appear as the blossom-buds open, which they unite with white thread.

T. nigricana. Red Plum Grub Tortrix. Moth black, appearing in June. Eggs deposited on the plum; grub small, red, pierces the fruit, and is found near the stone. Mr. Curtis observes that, "If the plums that have fallen off be examined, a small red caterpillar will be found within it; the caterpillar being generally full grown when the plum falls off, soon creeps out, and penetrates the loose bark, forming a case, in which it remains during the winter. Early in the spring it changes into a light brown pupa, and the moth emerges about June. The moth is not so large as a house-fly; its wings are almost black, and when the sun is shining on them they have a remarkably metallic lustre; on the outer edge of the forewings there is an appearance of fine silver dust. Among the remedies proposed to lessen the ravages of this insect, it is recommended to shake the trees and remove all the fruit that falls off; and another good method is to scrapethrough pieces of bark off the stem under which the cocoons are concealed: this must be done late in the autumn, or early in the spring."

T. Bergmanniana. Rose Tortrix. Differs little to a common observer from the preceding. Where bushes are much infested with the larvæ of these insects, it is much better to cut them down, and burn the shoots. This and hand-picking are the only remedies we are acquainted with. Care must be taken not to disturb the maggots when collecting them, for they will let themselves down with threads, and thus escape.

T. ocellana. This is the parent of the red-bud caterpillar, which destroys the buds of the apple and pear. Upper wings grey, with a white transverse band.

T. Wæberiana. Plum-tree Tortrix. Its larva feeds on the inner bark of the plum, apricot, almond, and peach. The grubs pierce holes through the bark, which may be detected by small heaps of red powder upon it. Moth brown; grub greenish, with a red head.

T. pomonana. Codling Moth. Its reddish-white grub is common in apples and pears. Moth light grey, streaked with dark grey. Seen of an evening during May, and the grubs appear soon

after. All fallen apples should be destroyed, because they usually contain this or other grubs, which will otherwise produce moths, and multiply the evil.

T. turionana, *T. hyrcyniana*, *T. resinella*, and *T. buoliana*, all infest pine-trees, injuring them by depositing their eggs in the buds, which are subsequently preyed upon by their caterpillars.

TOUCH-ME-NOT. *Impatiens*.

TORREYA. (Named after Dr. Torrey, a botanical writer. Nat. ord., *Taxads* [Taxaceæ]. Linn., 22-Diaceia 13-Monadelphica. Allied to *Taxus*.)

For culture, see TAXUS. Hardy evergreens.

T. Humboldtii (Humboldt's). Georgia. 1848.

— *myristica* (Californian nutmeg). 40. California. 1851.

— *taxifolia* (yew-leaved). 30. Florida. 1840.

TOURNEFORTIA. (Named after J. P. Tournefort, a great systematic botanist. Nat. ord., *Ehretiads* [Ehretiaceæ]. Linn., 5-Pentandria 1-Monogynia. Allied to the *Heliotrope*.)

Cuttings of young shoots in April or August, in sandy soil, under glass, and in a little heat. Some, such as *heliotropioides*, make a fair bed out of doors; except for this purpose, they are not worth house room either in a greenhouse or a plant-stove; any light, common soil suits them, and they may be planted out in the middle of May.

GREENHOUSE EVERGREENS.

T. umbellata (umbelled). White. June. Mexico. 1826.

— *velutina* (velvety). 10. White. June. Mexico. 1826.

STOVE EVERGREENS.

T. Caracasana (Caraccas). White. May. Caraccas. 1828.

— *gnaphaloides* (gnaphalium-like). White. June. W. Ind. 1820.

— *heliotropioides* (heliotrope-like). 2. Pale lilac. May. Buenos Ayres. 1829.

— *hirsutissima* (hairiest). 10. Green, yellow. June. W. Ind. 1818.

— *laurifolia* (laurel-leaved). 12. Yellow. July. W. Ind. 1829.

— *maculata* (spotted-fruited). Yellow. June. Carthage. 1828.

— *scaendens* (climbing). 10. Green, yellow. July. Peru. 1816.

— *volubilis* (twining). 10. Green, yellow. July. Jamaica. 1752.

TOVOMITA. (*Tovomite*, the name in Cayenne. Nat. ord., *Guttifers* [Clusiaceæ]. Linn., 13-Polyandria 5-Pentagynia.)

Stove evergreen trees. Cuttings of half-ripened shoots in sand, under a bell-glass, in heat; sandy peat and fibry loam. Winter temp., 58° to 65°; summer, 65° to 90°, and moist atmosphere.

T. Clusiæfolia (Clusia-leaved). 10. Yellow. May. Cayenne. 1823.

— *Guianensis* (Guianan). Green. Guiana. 1827.

TRACHELIUM. Throatwort. (From *trachelos*, the neck; supposed efficacy in

diseases of the trachea. Nat. ord., *Bell-worts* [Campanulaceæ]. Linn 5-Pentandria 1-Monogynia.)

Hardy herbaceous perennial. Seeds in a slight hotbed in spring; also by cuttings of young shoots in sandy soil, in April, or at the end of summer; sandy loam and a little vegetable mould.

T. caruleum (blue). 2. Blue. August. Italy. 1640.

TRACHYME'NE. (From *trachys*, rough, and *hymen*, a membrane; channels of the fruit. Nat. ord., *Umbellifers* [Apiaceæ]. Linn., 5-Pentandria 1-Monogynia.)

All the following are greenhouse, New Holland, evergreen plants, except *carulea*. The annuals never do much good in the open air, however raised; but if sown in a gentle hotbed in March, pricked out and potted, and flowered in the greenhouse in summer, they will reward the trouble; sandy loam and leaf-mould; shrubs, cuttings of young shoots under a bell-glass, in sandy soil; sandy loam and fibry peat. Winter temp., 40° to 50°.

T. carulea (sky-blue). 1½. Blue. July. 1827. Annual.

— *compressa* (flat-stalked). 1. Pale yellow. May. — *linearis* (narrow-leaved). 2. Yellow. July. 1824.

— *ovalis* (oval-leaved). 1. White. May. — *ovata* (egg-leaved). 1. Pale yellow. May.

TRADESCANTIA. Spiderwort. (Named after J. Tradescant, gardener to Charles I. Nat. ord., *Spiderworts* [Commelinaceæ]. Linn., 6-Hexandria 1-Monogynia.)

All blue-flowered, except where otherwise mentioned. Annuals, by seed; perennials, by divisions in spring; rich, light loam; those requiring the greenhouse and stove will thrive better from having a little peat, and they should be well drained.

HARDY ANNUALS.

T. erecta (upright). 2. July. Mexico. 1794. — *latifolia* (broad-leaved). 1½. October. Lima. 1816.

GREENHOUSE HERBACEOUS, &c.

T. crassifolia (thick-leaved). 3. August. Mexico. 1796. — *paniculata* (panicked). 1. August. E. Ind. 1816. Biennial. — *pulchella* (neat). 1. July. Mexico. 1825. Evergreen. — *tumida* (swollen). 1. Red. September. Mexico. 1837.

STOVE HERBACEOUS, &c.

T. cordifolia (heart-leaved). ½. June. Jamaica. 1819. Evergreen. — *crassula* (thick). 1. White. July. Brazil. 1825. — *discolor* (various-coloured). 1. June. S. Amer. 1783. — *diuretica* (diuretic). ½. June. Brazil. 1825. — *divaricata* (straggling). ½. June. Trinidad. 1818. — *fusca* (browned). ½. September. S. Amer. 1820. — *geniculata* (knotted). 1. July. W. Ind. 1783. — *Malabarica* (Malabar). 1. Purple. July. E. Ind. 1776. — *Martensiana* (Marten's). White. E. Ind. — *multiflora* (many-flowered). ½. June. Jamaica. 1820. — *procumbens* (trailing). ½. June. Trinidad. 1824. Evergreen.

T. speciosa (showy). 1. July. Mexico. 1825. — *spicata* (spiked). 2. Purple. Mexico. — *tuberosa* (tuberous). 1½. July. E. Ind. 1817. — *undulata* (waved). 1. June. Trinidad. 1819. — *zebrina* (zebra). Reddish-purple. September. 1846.

HARDY HERBACEOUS.

T. caricifolia (sedge-leaved). 1. August. Texas. 1835. — *congesta* (crowded). 2. August. N. Amer. 1825. — *pilossa* (hairy-herbage). 2½. Purple. July. Louisiana. 1832. — *rosea* (rosy). 1. Pink. June. Carolina. 1802. — *Virginica* (Virginian). 1½. July. N. Amer. 1629. — *alba* (white). 1. White. July. N. Amer. 1629. — *carulea alba* (blue-and-white). 1. Blue, white. July. N. Amer. 1629. — *pilossa* (shaggy). 1. White. July. N. Amer. 1629. — *plena* (double-flowered). 1. Blue. July. N. Amer. 1629. — *rubra* (red). 1. Red. July. N. Amer. 1629.

TRAGOPOGON. Goat's Beard. (From *tragos*, a goat, and *pogon*, a beard; long, silky beards of the seed. Nat. ord., *Composites* [Asteraceæ]. Linn., 19-Syngenesia 1-Æqualis.)

Hardy biennials, yellow-flowered, except where otherwise mentioned; seeds in March and August; common garden-soil. See SALSAFY.

T. dubius (doubtful). 3. May. Podolia. 1818. — *floccosus* (woolly). 3. May. Hungary. 1816. — *major* (greater). 6. May. Austria. 1788. — *minor* (smaller). 2. June. Britain. — *mutabilis* (changeable). 3. Pale. May. Siberia. 1816. — *orientalis* (eastern). 3. June. Levant. 1787. — *porrifolius* (leek-leaved. *Salsafy*). 4. Purple. May. England. — *pusillus* (small). ½. June. Iberia. 1820. — *roseus* (rosy). 1½. Red. May. Siberia. 1826.

TRAGOPYRUM. Goat's Wheat. (From *tragos*, a goat, and *pyros*, wheat. Nat. ord., *Buckwheats* [Polygonaceæ]. Linn., 8-Octandria 3-Trigynia.)

Hardy deciduous shrubs. Generally by layers in spring and autumn; a moist, peaty soil suits them most.

T. buxifolium (box-leaved). 1½. White. July. Siberia. 1800. — *lanceolatum* (spear-head-leaved). 2. Pink. July. Siberia. 1778. — *polygamum* (polygamous). 2. Pink. July. Carolina. 1810.

TRAILERS. See CREEPERS.

TRAIN OIL. See ANIMAL MATTERS.

TRAINING has for its object the rendering plants more productive either of flowers or of fruit, by regulating the number and position of their branches. If their number be too great they overshadow those below them, and, by excluding the heat and light, prevent that elaboration of the sap required for the production of fructification. If they are too few the sap is expended in the production of more, and in extending the

surface of the leaves required for the digestion of the juices.

The position of the branches is important, because, if trained against a wall, they obtain a higher temperature and protection from winds; and if trained with their points below the horizontal the return of the sap is checked. Shy-flowering shrubs, as *Diplacus puniceus*, are made to blossom abundantly, and freely-flowering shrubs, as *Cytisus hybridus*, are made to blossom earlier, by having their branches bent below the horizontal line.

The reason of this appears in the fact, that a plant propels its sap with greatest force perpendicularly, so much so that the sap rising in a vine branch growing in a right line from the root, with a force capable of sustaining a column of mercury twenty-eight inches high, will, if the branch be bent down to a right angle, support barely twenty-three inches, and if bent a few degrees below the horizontal the column sustained will not be more

than twenty-one inches. This is the reason why, at such angles, gardeners find the trained branches of their wall-trees rendered more productive of blossoms, and furnished with a smaller surface of leaves. A similar effect is produced by training a branch in a waving form, for two-thirds of its length are placed horizontally, as in



the accompanying outline.

Besides the usual modes of training—for which see also **ESPALIERS** and **STANDARDS**—there are two other modes which deserve notice.

Quenouille Training consists in training one upright central shoot in summer, and shortening it down to fifteen inches at the winter pruning, in order that it may, at that height, produce branches forming a tier, to be trained, in the first instance, horizontally. The shoot produced by the uppermost bud is, however, trained as upright as possible during the summer, and is cut back, so as to produce another tier fifteen inches above the first,

and so on until the tree has reached the desired height. In this climate it is necessary to train the shoot downwards, which is easily done by tying those of the first tier to short stakes, those of each successive tier being fastened to the branches below them. When the shoots are thus arched downwards at full length, or nearly so, they soon come into a bearing state; but in this climate, if cut short, as the French do, they only send up a number of shoots annually. The plan answers very well where it can be at all times properly attended to; but if this cannot be guaranteed, the ordinary form of dwarf is preferable. Quenouilles require more time to be devoted to them than espaliers.

Balloon Training is forcing downwards all the branches of standard trees till the points touch the earth, and they have the merit of producing large crops of fruit in a very small compass. Their upper parts are, however, too much exposed to radiation at night, and the crop from that part of the branches is apt to be cut off.

TRANSPLANTING is most successfully performed whenever the roots are least required for supplying the leaves with moisture. The reason is obvious, because the roots are always in some degree broken, and lessened in their absorbing power, by the process of removal. That such is the rationale of seasonable transplanting is proved by the fact, that plants in pots, with reasonable care, may be transplanted at any season. This rule, too, is sanctioned both by theory and practice—transplant as early as possible after the leaves cease to require a supply of sap; the reason for which is, that the vital powers in the roots continue active long after they have become torpid in the branches, and fresh roots are formed during the autumn and winter to succeed those destroyed by transplanting.

For transplanting most *deciduous* trees and shrubs October and November are the most successful months. In transplanting *evergreens*, Mr. Beaton says:—I do not now concur in the general belief that autumn is the best time to plant all kinds of evergreens *indiscriminately*. I have planted evergreens every week in the year, more from necessity than choice it is true, but still the result of the whole convinces me that a dogmatic adherence to this or that given period of the year is just as bad and unphilosophical as the

old prejudice in favour of planting all kinds of evergreens late in the spring. That vast assemblage of evergreens belonging to the natural order *Conifers*, from the Cedar of Lebanon down to the trailing Juniper, should be planted from the middle of July to the beginning of October, according to the weather after St. Swithin's day. November, on the other hand, is as good a time as can be to remove evergreens of all kinds, provided that large balls of earth be removed with them. *Hollies*, *Laurestinus*, *Alaternus*, *Phillyreas*, and *Tree Box* will transplant as well in May and June as at any other time of the year—of that I am quite certain; I have removed hundreds of them in May and June without losing a twig. On the other hand, all these, and many more besides, will answer as well if planted early in November; but that is no reason for giving up the old plan of late spring planting such evergreens as do well at that time, although we need not do so from choice. The whole question amounts to this:—All evergreens succeed if planted in the autumn; a great number of them will do better from being planted in the autumn, and will not transplant safely except in the autumn; while a large portion of them may be planted every day in the year with almost equal success.

November and May are the best two months to remove *Roses*. All the young and tender ones in pots turn out in May; but for all those on their own roots November is the best month to remove them.

TRA'PA. Water Caltrops. (From *calci-trapa*, an ancient instrument in warfare with four spikes; fruit armed with four spikes, or horns. Nat. ord., *Hippuriads* [*Haloragaceæ*]. Linn., 4-*Tetrandria* 1-*Monogynia*.)

Aquatics. Seeds; good loam, in a tub or pond of water; *na'tans* will do in the latter; the others require the shelter of a greenhouse.

T. bico'rnis (two-horned). White. July. China.

1790. Greenhouse perennial.

—*bispino'sa* (two-spined). White. July. E. Ind.

1822. Greenhouse biennial.

—*na'tans* (floating). White, purple. July. Europe. 1781. Hardy annual.

—*quadrispino'sa* (four-spined). White. July. E. Ind. 1823. Greenhouse biennial.

TREVIRA'NIA. The following should be united to *Achimenes*:—

T. pulche'lla (neat). Scarlet. August. Jamaica. 1778.

TRAVELLER'S JOY. *Cle'matis vita'lba* and *C. vio'rna*.

TREE CELANDINE. *Bocco'nia frute'scens*.

TREE GUARDS. The following are cheap and effectual:—Stakes about the thickness of the wrist, seven feet in length, and tolerably straight, chopped each a little flat on one side, some iron hooping, a little thicker than coopers are in the habit of using for barrels, with punched holes through it six inches apart, with one hole near each end. Nail this to the stakes on the chopped side, one foot from the top of them, and one foot from the bottom; then raise it, and bend it circularly round the tree, observing that the hoops are placed inside, nearest the tree; the holes left at each end of the hoop are then clenched up with a nail, and the guard is complete.

The following plan is somewhat similar:—Procure stakes of ash or larch, six feet in length, or more if requisite, and about two inches in diameter, and bore holes through the tops and bottoms about one foot from each end. Get a similar hole drilled up the centre of a stake, and saw it off in lengths of two inches, or rather less; pass a strong wire, or thick tarred string, through one stake, by the holes at the top and at the bottom; then pass it through the hole made in one of the two-inch pieces at each end, and then through another stake, separating each stake at top and bottom by a piece of wood, until you leave enough to surround the tree loosely, leaving plenty of space for growth. Place it round the tree, and fasten the ends of the wire or string. This guard is much the same as a cradle put round the neck of a blistered horse, to prevent his gnawing the irritated part. The stakes merely rest on the ground, and should be cut quite flat at the bottom, to prevent their sticking into the ground. At the upper end they should have a sharp slanting cut with a bill-hook, and threaded with the slope towards the tree. The motion of the tree will not in any degree be impeded; and the bark cannot be injured let the wind blow as it may, for the guard moves freely with the tree in every direction.

TREES are a chief material in landscape gardening. The varieties in their shapes, says Mr. Whately, may be reduced to the following heads:—Some, thick with branches and foliage, have almost an appearance of solidity, as the beech, the elm, the lilac, and seringa; others, thin of boughs and of leaves, seem light and

airy, as the ash and the abele, the common arbor vitæ and the tamarisk.

There is a mean betwixt the two extremes, very distinguishable from both, as in the bladder-nut and the ashen-leaved maple. They may again be divided into those whose branches begin from the ground, and those which shoot up in a stem before their branches begin. Trees which have some and not much clear stem, as several of the firs, belong to the former class; but a very short stem will rank as a shrub, such as the althæa, in the latter.

Of those, the branches of which begin from the ground, some rise in a conical figure, as the larch, the cedar of Lebanon, and the holly. Some swell out in the middle of their growth and diminish at both ends, as the Weymouth pine, the mountain ash, and the lilac; and some are irregular and bushy from the top to the bottom, as the evergreen oak, the Virginian cedar, and Guelder rose. There is a great difference between one whose base is very large, and another whose base is very small, in proportion to its height. The cedar of Lebanon and the cypress are instances of such a difference; yet in both the branches begin from the ground.

The heads of those which shoot up into a stem before their branches begin sometimes are slender cones, as of many firs; sometimes are broad cones, as of the horse-chestnut; sometimes they are round, as of the stone pine, and most sorts of fruit-trees; and sometimes irregular, as of the elm. Of this kind there are many considerable varieties.

The branches of some grow horizontally, as of the oak; in others they fall, as in the lime and the acacia; and in some of these last they incline obliquely, as in many of the firs; in some they hang directly down, as in the weeping willow.

Some are of a dark green, as the horse-chestnut and the yew; some of a light green, as the lime and the laurel; some of a green tinged with brown, as the Virginian cedar; some of a green tinged with white, as the abele and the sage-tree; and some of a green tinged with yellow, as the ashen-leaved maple and the Chinese arbor vitæ. The variegated plants, also, are generally entitled to be classed with the white or the yellow, by the strong tincture of the one or the other of those colours on their leaves.

The fall of the leaf is the time to learn

the species, the order, and the proportion of tints, which blended will form beautiful masses; and, on the other hand, to distinguish those which are incompatible near together. The peculiar beauty of the tints of red cannot then escape observation, and the want of them throughout the summer months must be regretted; but the want, though it cannot perfectly, may partially be supplied, for plants have a permanent and an accidental colour. The permanent is always some shade of green, but any other may be the accidental colour; and there is none which so many circumstances concur to produce as a red. It is assumed in succession by the bud, the blossom, the berry, the bark, and the leaf. Sometimes it profusely overspreads, at other times it dimly tinges the plant, and a reddish-green is generally the hue of those plants on which it lasts long or frequently returns.

Admitting this, at least for many months in the year, among the characteristic distinctions, a large piece of red-green, with a narrow edging of dark green along the further side of it, and beyond that a piece of light green still larger than the first, will be found to compose a beautiful mass. Another, not less beautiful, is a yellow-green nearest the eye, beyond that a light green, then a brown-green, and lastly a dark green. The dark green must be the largest, the light green the next in extent, and the yellow-green the least of all.

From these combinations the agreements between particular tints may be known. A light green may be next either to a yellow or a brown-green, and a brown to a dark green, all in considerable quantities; and a little rim of dark green may border on a red or a light green. Further observations will show that the yellow and the white-greens connect easily; but that large quantities of the light, the yellow, or the white-greens do not mix well with a large quantity also of the dark green; and that to form a pleasing mass, either the dark green must be reduced to a mere edging, or a brown or an intermediate green must be interposed; that the red, the brown, and the intermediate greens agree among themselves, and that either of them may be joined to any other tint; but that the red-green will bear a larger quantity of the light than of the dark green near it; nor does it seem so proper a mixture with the

white-green as with the rest. In massing these tints an attention must be constantly kept up to their forms, that they do not lie in large stripes one beyond another; but that either they be quite intermingled, or, which is generally more pleasing, that considerable pieces of different tints, each a beautiful figure, be in different proportions placed near together. See CLUMP, AVENUE, and GROVE.

TREE MALLOW. *Lavatera arbo'rea*.

TREE OF SADNESS. *Nycta'nthes a'rbor tri'stis*.

TREE OF CANADA ONION. (*Allium proli'ferum*.) This is without a bulbous root, but throws out numerous offsets. Its top bulbs are greatly prized for pickling, being considered of superior flavour to the common onion.

It is propagated both by the root offsets, which may be planted during March and April, or in September and October, and from the top bulbs, which are best planted at the end of April. The old roots are best to plant again for a crop of bulbs, as they are most certain to run to stems. Plant in rows twelve inches asunder, in holes six inches apart and two deep, a single offset or bulb being put in each. Those planted in autumn will shoot up leaves early in the spring, and have their bulbs fit for gathering in June or the beginning of July. Those inserted in the spring will make their appearance later, and will be in production at the close of July or early in August. They must not, however, be gathered for keeping or planting until the stalks decay, at which time, or in the spring also, if only of one year's growth, the roots may be taken up and parted if required for planting; but when of two or three years' continuance, they must, at all events, be reduced in size, otherwise they grow in too large and spindling bunches; but the best plan is to make a fresh plantation annually with single offsets.

The bulbs, when gathered, must be gradually and carefully dried in a shady place, and if kept perfectly free from moisture will continue in good state until the following May.

TRELLIS, or TREILLAGE, is an arrangement of supporters upon which to train plants.

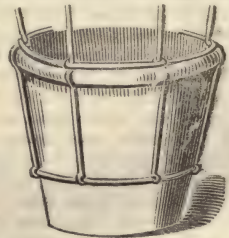
Espalier Trellis.—The cheapest, the easiest, and the soonest made is that formed with straight poles or stakes of ash, oak, or chestnut, in lengths of from

five to six or seven feet, driving them in the ground in a range about a foot distant, all of an equal height, and then railed along the top with the same kind of poles or rods, to preserve the whole form in a regular position. They should be full an inch and a half thick, and, having pointed them at one end, drive them with a mallet into the ground in a straight range, close along the row of trees, a foot deep at least. To render treillage still stronger, run two, three, or more ranges of rods, along the back part of the uprights, a foot or eighteen inches asunder, fastening them to the upright stakes either with pieces of strong wire twisted two or three times round, or by nailing them.

Espalier trellis made of cast-iron rods is neater and much more durable than that made of wood.

Trellis for Climbers.—These have been greatly improved, or rather, they have been created within these few years, for ten years ago we had nothing but stakes and rods.

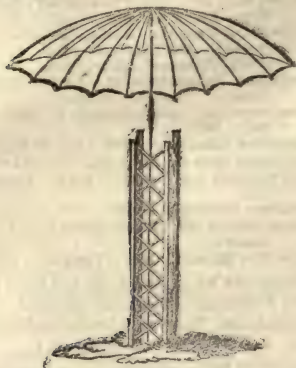
Their forms are now various and elegant; but we shall here only explain the manner in which the wire trellis for climbing plants is attached to the pots. It will be seen that a strong wire ring is



carried round the pot a little above its bottom. To this a sufficient number of upright wires are attached all round. These upright wires are pressed down upon the surface of the pot till they reach the rim, over which they are firmly bent till they reach the highest point of the rim, or are even bent a little within it. At this point they are secured by a second ring of stout wire, adjusted as in the drawing, which having been done, the uprights are directed upwards, and fashioned into the pattern required. By these means a sort of collar is formed upon the rim of the pot, which prevents the trellis from slipping downwards, while, at the same time, the lowest ring

of wire keeps it from swinging and swaying backwards and forwards.

Umbrella Trellis is a form excellently adapted for *Wistaria Sine'nsis*, and other climbers or shrubs having long racemes of flowers.



Hothouse Trellis, for training vines near the glass, is usually made of thin rods of deal or of iron, placed about a foot apart, and fastened to the framework of the building. Mr. Long, Beaufort Place, Chelsea, has invented a moveable wire trellis, by which the vines may be lowered from the roof, or placed at any angle, without injuring the vines. This is an excellent mode of removing them from the influence of extreme exterior heat or cold. A still further improvement would be to have the vertical rods moveable round the rod horizontally fixed to the rafter or roof, for then the whole trellis might be raised to an angle with, or even close to, the glass, whenever sun to the vine upon the trellis, or shade to the plants within the house, was desirable.

TREMBLING AMERICAN-TREE. *Populus tremula*.

TRENCHING is one of the readiest modes in the gardener's power for renovating his soil. The process is thus conducted:—From the end of the piece of ground where it is intended to begin take out a trench two spades deep, and twenty inches wide, and wheel the earth to the opposite end to fill up and finish the last ridge. Measure off the width of another trench, then stretch the line, and mark it out with the spade. Proceed in this way until the whole of the ridges are outlined, after which begin at one end, and fill up the bottom of the first trench with the surface

or "top spit" of the second one; then take the bottom "spit" of the latter, and throw it in such a way over the other as to form an elevated sharp-pointed ridge. By this means a portion of fresh soil is annually brought on the surface in the place of that which the crop of the past season may have, in some measure, exhausted.

Bastard Trenching is thus performed:—Open a trench two feet and a half or a yard wide, one full spit, and the shovelling deep, and wheel the soil from it to where it is intended to finish the piece; then put in the dung, and dig it in with the bottom spit in the trench; then fill up this trench with the top spit, &c., of the second, treating it in like manner, and so on. The advantages of this plan of working the soil are, the good soil is retained at the top, an important consideration where the subsoil is poor or bad; the bottom soil is enriched and loosened for the penetration and nourishment of the roots, and, allowing them to descend deeper, they are not so liable to suffer from drought in summer; strong soil is rendered capable of absorbing more moisture, and yet remains drier at the surface by the water passing down more rapidly to the subsoil, and it insures a thorough shifting of the soil.

In all trenching, whether one, two, or more spades deep, always, previous to digging, put the top of each trench two or three inches deep or more, with all weeds and other litter at the bottom of the open one, which not only makes clean digging and increases the depth of loose soil, but all weeds and their seeds are regularly buried at such a depth, that the weeds themselves will rot, and their seeds cannot vegetate.

TRI'BUSUL. Caltrops. (From *treis*, three, and *ballo*, to project; carpels, or divisions of the seed-vessel, end in three or four projecting points. Nat. ord., *Beancapers* [Zygophyllaceæ]. Linn., 10. *Decandria* 1. *Monogynia*.)

All yellow-flowered, and annuals, except *cistoïdes*. Sow in a hotbed in March, harden off, and put in a sheltered place in the garden towards the beginning of June, or flower in pots in the greenhouse; rich, light, sandy loam; a little peat will be required for *cistoïdes*, which is easily increased by cuttings in the spring.

T. cistoïdes (cistus-like). 1½. July. S. Amer.
1752. Stove evergreen.
— *maritimus* (greatest). 1½. June. Jamaica. 1728.
— *terrestris* (earth). 1. June. South Europe. 1596.
— *trijugatus* (three-paired). ½. June. Georgia.
1819.

TRICHI'LIA. (From *tricha*, in threes, or ternary; the parts of the seed-pods in threes. Nat. ord., *Meliads* [*Meliaceæ*]. Linn., 10-*Decandria* 1-*Monogynia*.)

White-flowered, stove evergreen trees. Cuttings of ripened shoots in sand, under a bell-glass, and in a moist, sweet heat, in April or autumn; fibry loam and sandy peat. Winter temp., 55° to 60°; summer, 60° to 80°.

T. glandulosa (glanded). 20. July. N. Holland. 1821.

— *Havane'nsis* (Havannah). 30. June. Havannah. 1794.

— *terminalis* (terminal). 20. Jamaica. 1825.

— *trifoliata* (three-leaved). 8. S. Amer. 1828.

TRICHINIUM. (From *trichinos*, hairy; flowers covered with knotted hairs. Nat. ord., *Amaranths* [*Amarantaceæ*]. Linn., 5-*Pentandria* 1-*Monogynia*.)

Australian annuals. Seeds in a hotbed in April; pricked out, and ultimately bloomed in a cool greenhouse; rich, sandy loam and a little peat.

T. alopecuroidium (foxtail-like). 1. Yellow, red. June. 1838.

— *Mangle'sii* (Mangles'). White, pink. June. 1838.

— *Stirlingii* (Stirling's). White, pink. June. 1838.

TRICHOCE'NTRON. (From *thrix*, a hair, and *centron*, a spur; application not obvious. Nat. ord., *Orchids* [*Orchidaceæ*]. Linn., 20-*Gynandria* 1-*Monandria*.)

Stove orchids, grown on blocks. See **ORCHIDS**.

T. caudatum (white). White, yellow. May. Guatimala. 1840.

— *fulcum* (brown). $\frac{1}{2}$. Green, white. July. Mexico. 1835.

— *iridifolium* (iris-leaved). Yellow. September. Demerara. 1830.

— *maculatum* (spotted). White, purple. February. New Grenada.

— *recurvum* (curled-back). White, purple. May. Guiana. 1842.

TRICHODE'SMA. (From *thrix*, a hair, and *desmos*, a bond; anthers bound together by hairs. Nat. ord., *Borageworts* [*Boraginaceæ*]. Linn., 5-*Pentandria* 1-*Monogynia*.)

Stove annual. Sow in a hotbed early in spring; plant out the seedlings in a sheltered, warm border early in June.

T. Zeylanicum (Ceylon). 4. Blue. August. Ceylon and W. Australia. 1855.

TRICHO'MANES. (From *thrix*, a hair, and *manos*, soft; the shining stems appear like fine hair. Nat. ord., *Ferns* [*Polypodiaceæ*]. Linn., 24-*Cryptogamia* 1-*Filices*.)

Stove, brown-spored Ferns. See **FERNS**.

T. achilleaefolium (milfoil-leaved). Isle of Luzon.

— *aculeatum* (prickly). May. Isle of Luzon.

— *ala'tum* (winged). June. W. Ind. 1824.

— *angustatum* (narrowish). May. Isle of Luzon.

T. brevisetum (short-bristled). $\frac{1}{2}$. May. Britain. Hardy.

— *crispum* (curled). May. W. Ind. 1829.

— *curvatum* (curved). April. Isle of Luzon.

— *dissectum* (cut-leaved). April. Isle of Luzon.

— *floribundum* (many-flowered). May. W. Ind. 1825.

— *fulsco-glauce'scens* (brownish-milky-green). May. Isle of Luzon.

— *gemma'tum* (budded). April. Malacca.

— *humile* (low). May. Isle of Luzon.

— *Javanicum* (Javanese). May. Java.

— *mei'folium* (meum-leaved). April. Isle of Luzon.

— *membrana'ceum* (membranous). $\frac{1}{2}$. May. W. Ind. 1820.

— *obscurum* (obscure). April. Isle of Luzon.

— *pa'rvulum* (very small). April. Isle of Luzon.

— *quercifolium* (oak-leaved). April. Jamaica. 1844.

— *radicans* (rooting). April.

— *rhomboidium* (diamond-shaped). May. Isle of Luzon.

— *spica'tum* (spiked). May. Jamaica. 1844.

TRICHONE'MA. (From *thrix*, a hair, and *nema*, a filament; stamens clothed with minute hairs. Nat. ord., *Irids* [*Iridaceæ*]. Linn., 3-*Triandria* 1-*Monogynia*.)

Half-hardy bulbs, which require the same treatment as *Ixia*. All from the Cape of Good Hope, where not otherwise stated.

T. bulbocodium (bulbocodium). $\frac{1}{2}$. Red. March. South Europe. 1739.

— *caule'scens* (stemmed). $\frac{1}{2}$. Yellow. June. 1810.

— *chloroleucum* (greenish-white). $\frac{1}{2}$. Green, white. June. 1825.

— *caelestium* (celestial). $\frac{1}{2}$. Blue. March. Carolina. 1818.

— *Columna'ea* (Columna's). $\frac{1}{2}$. Blue. March. Italy. 1825.

— *crucia'tum* (cross-shaped). $\frac{1}{2}$. Rose. May. 1758.

— *edule* (eatable). Socotra. 1842.

— *filifolium* (thread-leaved). $\frac{1}{2}$. Yellow. May. 1822.

— *longifolium* (long-leaved). $\frac{1}{2}$. Rose. May. 1758.

— *pu'dicum* (blushing). $\frac{1}{2}$. Red. August. 1808.

— *purpura'scens* (purplish). $\frac{1}{2}$. Purple. May. Italy. 1825.

— *py'lum* (pylium). $\frac{1}{2}$. Yellow, white. Havannah.

— *quadra'ngulum* (four-angled). $\frac{1}{2}$. June. 1825.

— *ramiflorum* (branched-flowered). $\frac{1}{2}$. Purple. June. Naples. 1830.

— *recurvum* (curled-back). $\frac{1}{2}$. Red. June. 1812.

— *roseum* (rosy). $\frac{1}{2}$. Pink. July. 1818.

— *speciosum* (showy). $\frac{1}{2}$. Red. May. 1808.

— *subpala'stre* (rather boggy). $\frac{1}{2}$. Lilac, white. Ionian Isles.

— *tortuosum* (twisted-leaved). $\frac{1}{2}$. Yellow. May. 1822.

TRICHOPE'TALUM. (From *thrix*, a hair, and *petalon*, a petal; flowers fringed inside. Nat. ord., *Lilyworts* [*Liliaceæ*]. Linn., 6-*Hexandria* 1-*Monogynia*.)

Half-hardy herbaceous perennials, from Chili. Division in spring; rich, sandy loam and a little peat. Winter temp., 38° to 45°.

T. gracile (slender). 3. Greenish. July. 1828.

— *stellatum* (starry-flowered). 1. White. April. 1829.

TRICHOPI'LIA. (From *thrix*, a hair,

and *pilon*, a cap; summit of the column with tufts of hair. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-*Gynandria* 1-*Monandria*. Allied to *Aspasia*.)

Stove orchids, grown in baskets. See ORCHIDS.
T. coccinea (red-flowered). Red, purple. April. Central America. 1849.
 — *to'rtilis* (twisted-petaled). ♀. White, red. January. Mexico. 1835.
 — *pallida* (pale). White. January. Guatemala. 1844.
 — *sua'vis* (sweet). White, purple. April. Central America. 1852.

TRICHOSANTHES. Snake Gourd. (From *thrix*, a hair, and *anthos*, a flower; flowers fringed. Nat. ord., *Cucurbits* [Cucurbitaceæ]. Linn., 21-*Monœcia* 10-*Decandria*.)

Stove, white-flowered annuals. Seeds in a sweet hotbed in March, potted and grown in a plant-stove; sandy loam, leaf-mould, and fibry peat. The great length of the cucumber-like seed-vessel is interesting.

T. anguina (common. Snake). 4. May. China. 1735.
 — *colubrina* (serpent-like). 20. August. Cabello. 1844.
 — *palmeta* (hand-leaved). July. E. Ind. 1825.

TRICHOSMA. Hair Orchis. (From *thrix*, a hair, and *kosmos*, ornament. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-*Gynandria* 1-*Monandria*.)

Stove orchid, grown in a basket. See ORCHIDS.
T. sua'vis (sweet). 1. White, yellow. June. E. Ind. 1840.

TRICORYNE. (From *treis*, three, and *koryne*, a club; form of the seed-pod. Nat. ord., *Lilyworts* [Liliaceæ]. Linn., 6-*Hexandria* 1-*Monogynia*. Allied to *Anthericum*.)

Half-hardy, white-flowered, herbaceous perennials, from New Holland. Division and seeds; rich, sandy loam; a very sheltered place, or a cold pit, or a cool greenhouse in winter.

T. elatior (taller). 2. June. 1824.
 — *scabra* (rough). 1. 1826.
 — *simplex* (simple-stemmed). 1. July. 1823. Biennial.

TRIENTALIS. Wintergreen. (From *triens*, one-third; low growth. Nat. ord., *Primeworts* [Primulaceæ]. Linn., 7-*Heptandria* 1-*Monogynia*.)

Hardy, white-flowered, herbaceous perennials. Seeds under a hand-light; divisions of the plant in spring; light, rich soil. Pretty little plants, requiring a shady situation.

T. americana (American). ♀. July. N. Amer. 1816.
 — *europæa* (European). ♀. May. Britain.

TRIFOLIUM. Trefoil. (From *tres*, three, and *folium*, a leaf; three-leaved. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 17-*Diadelphia* 4-*Decandria*.)

Seeds in the open ground, and divisions of the herbaceous perennials; light, rich loam.

HARDY HERBACEOUS.

- T. alatum* (winged). ♀. Flesh. June. South Europe. 1820.
 — *alpinum* (alpine). ♀. Purple. July. Europe. 1775.
 — *armenicum* (Armenian). 1. Red. July. Armenia. 1830.
 — *armenium* (Armenian). 1. Cream. August. Armenia. 1820.
 — *badium* (brown). ♀. Yellow. July. Pyrenees.
 — *cæspitosum* (turfy). ♀. Purple. July. Switzerland. 1815.
 — *comosum* (tufted). ♀. White. June. America. 1798.
 — *Cussonii* (Cusson's). 1. Blue. July. Sicily. 1826.
 — *elegant* (elegant). ♀. Pale red. July. Europe. 1823.
 — *erimium* (choice). ♀. Purple. June. Dahuria. 1820.
 — *albiflorum* (white-flowered). ♀. White. June. Altai.
 — *Latinum* (Latin). 1. White, red. June. Italy.
 — *lupinaster* (lupinaster). 1½. Purple. July. Siberia. 1741.
 — *albiflorum* (white-flowered). White. July. Siberia. 1818.
 — *medium* (mediate. Cow-grass). 2. Purple. June. England.
 — *Noricum* (Noric). 1. Cream. July. Carinthia. 1821.
 — *ochroleucum* (yellowish-white). 1. Sulphur. May. England.
 — *Pannonicum* (Pannonian). 1. White, yellow. June. Hungary. 1752.
 — *Pennsylvanicum* (Pennsylvanian). 1. Red. July. N. Amer. 1811.
 — *physodes* (bladdery). ♀. Reddish. June. Hungary. 1805.
 — *pratense* (meadow. Common Clover). 2. Purple. July. Britain.
 — *purpurea* (purplish). 1. Purple. June. Siberia. 1816.
 — *repens* (creeping. White Clover). 1½. White. July. Britain.
 — *pentaphyllum* (five-leaved). ♀. White. June. Britain.
 — *rubens* (red). 1½. Dark red. South Europe. 1633.
 — *rupestre* (rock). 1. White. June. Naples. 1820.
 — *trichophyllum* (hairy-headed). 1. Cream. June. Caucasus. 1827.
 — *uniflorum* (one-flowered). ♀. Blue. June. Italy. 1800.
 — *Sternbergianum* (Sternberg's). ♀. White. June. South Europe. 1822.
 — *vaginitum* (sheathed). 1. Pale yellow. Switzerland. 1819.

HARDY ANNUALS.

- T. Bocconii* (Boccon's). ♀. Pale purple. June. Spain. 1820.
 — *bracteatum* (large-bracted). 1. Purple. June. Morocco. 1804. Biennial.
 — *cernuum* (drooping). 1. Pale purple. June. Spain. 1820.
 — *cinctum* (girded). 1. Pale yellow. June. 1820.
 — *congestum* (crowded). ♀. White, red. June. South Europe. 1820.
 — *Constantinopolitanum* (Constantinople). ♀. Yellow. June. Turkey. 1820.
 — *erinaeum* (prickly). ♀. Pale red. June. Iberia. 1818.
 — *fuca'tum* (tinted). 1. Yellow. June. California. 1834.
 — *gemellum* (twin-spiked). ♀. Yellow. June. Spain. 1818.

- T. globosum* (globe-shaped). 1. Purple. July. Levant. 1713.
 — *hirtum* (hairy). 1. Purple. July. Barbary. 1817.
 — *pictum* (painted). 1. Purple. July. 1800.
 — *incarnatum* (flesh-coloured). 1. Flesh. July. Italy. 1596.
 — *Molinei* (Moline's). 1. White, red. July. South Europe. 1820.
 — *intermedium* (intermediate). 1. White. June. Italy. 1820.
 — *Kitaibelianum* (Kitaibel's). 1. Pale purple. July. Hungary. 1818.
 — *lago'pus* (hare's-foot). 1. Red. July. Spain. 1827.
 — *lappa'ceum* (burr-like). $\frac{1}{2}$. Pale red. July. Montpelier. 1787.
 — *ligusticum* (lovage-like). $\frac{1}{2}$. White, red. June. Spain. 1816.
 — *malacanthum* (dark-flowered). 1. Purple. July. 1824.
 — *maritimum* (sea). $\frac{1}{2}$. Pale purple. June. Britain.
 — *montanum* (mountain). 1. White. July. Europe. 1786.
 — *obscurum* (obscure). $\frac{1}{2}$. Purple. June. Italy. 1824.
 — *palidum* (pale-flowered). 1. White. June. Hungary. 1803.
 — *Parisiense* (Parisian). $\frac{1}{2}$. Yellow. June. France.
 — *parviflorum* (small-flowered). $\frac{1}{2}$. White. June. Hungary. 1820.
 — *procumbens* (lying-down. *Hop.*). 1. Yellow. June. Britain.
 — *purpureum* (purple). 1. Purple. June. France. 1816.
 — *reflexum* (bent-back). 1. Purple. July. Virginia. 1794.
 — *saxatile* (rock). $\frac{1}{2}$. Pale white. June. Switzerland. 1818. Biennial.
 — *speciosum* (showy). 1. Yellow. June. Candia. 1752.
 — *sphaerocephalon* (round-headed). $\frac{1}{2}$. White. June. N. Africa. 1820.
 — *squarrosum* (spreading). $\frac{1}{2}$. Pale purple. July. Spain. 1640.
 — *flavicans* (yellowish). $\frac{1}{2}$. Pale yellow. July. Pisanía. 1817.
 — *strictum* (erect). 1. White. July. South Europe. 1805.
 — *suaveolens* (sweet-scented). $\frac{1}{2}$. Purplish. July. Italy. 1820.
 — *supinum* (flat-lying). $\frac{1}{2}$. Pale purple. June. South Europe. 1816.
 — *tenuiflorum* (fine-flowered). $\frac{1}{2}$. Pale red. July. Italy. 1823.
 — *tenuifolium* (fine-leaved). $\frac{1}{2}$. June. Italy. 1826.
 — *tomentosum* (downy). $\frac{1}{2}$. Purple. June. South Europe. 1640.

TRIGONIA. (From *treis*, three, and *gonu*, an angle; the fruit three-angled. Nat. ord., *Milkworts* [Polygalacæ]. Linn., 16-Monadelphia 2-Pentandria.)

Stove evergreens. Cuttings of half-ripened shoots in sand, under a bell-glass, in heat; sandy, fibry loam, and a little rough peat and leaf-mould. Winter temp., 35° to 65°; summer, 60° to 85°.

T. laevis (smooth). White. June. Guiana. 1828.
 — *villosa* (shaggy). Yellow, red. Cayenne. 1820.

TRIGONIDIUM. (From *trigona*, a tri-angle, and *eidos*, like; resemblance of several parts of the plant. Nat. ord.,

Orchids [Orchidacæ]. Linn., 20-Gynandria 1-Monandria.)

Stove orchids, from Demerara, grown in pots. See ORCHIDS.

- T. acuminatum* (pointed). 1. Straw-colours 1834.
 — *acutum* (sharp). Chocolate.
 — *Egertonianum* (Sir P. Egerton's). 1 $\frac{1}{2}$. Pale brown. Year.
 — *obtusum* (blunt-petaled). 1. Orange, brown. June. 1834.
 — *ringens* (gaping). Yellow, green. Mexico. 1839.
 — *tenue* (slender). Brown, purple. May. 1836.

TRI'LLIUM. (From *trilia*, triple; the parts of the flower in threes. Nat. ord., *Parids* [Trilliaceæ]. Linn., 6-Hexandria 3-Trigynia. Allied to Paris.)

Hardy, North American, tuberous-rooted perennials. Division of the tuberous roots, and by seeds; sandy peat-border, or kept as alpine plants.

- T. Catesbæi* (Catesby's). $\frac{1}{2}$. Red. May. 1820.
 — *cernuum* (drooping). 1 $\frac{1}{2}$. White. April. 1758.
 — *erectum-album* (upright-white). $\frac{1}{2}$. White. April. 1700.
 — *erythronarpum* (red-fruited). $\frac{1}{2}$. Red, white. May. 1811.
 — *grandiflorum* (large-flowered). $\frac{1}{2}$. White. July. 1799.
 — *nervosum* (large-nerved). $\frac{1}{2}$. Red. April. 1820.
 — *obovatum* (reversed-egg-leaved). $\frac{1}{2}$. Red. April. 1810.
 — *petiolatum* (long-leaf-stalked). $\frac{1}{2}$. Brown. April. 1811.
 — *pumilum* (dwarf). $\frac{1}{2}$. Red. May. 1812.
 — *stylotum* (long-styled). $\frac{1}{2}$. Red. April. 1823.
 — *undulatum* (wavy-petaled). $\frac{1}{2}$. Red. April. 1818.

TRIO'PTERYS. (From *treis*, three, and *pteron*, a wing; carpels, or divisions of seed-vessel, three-winged. Nat. ord., *Malpighiads* [Malpighiacæ]. Linn., 16-Monadelphia 6-Decandria.)

Stove twiners. Cuttings of stubby side-shoots, any time in summer, in sand, under a bell-glass, and in a brick, sweet, moist bottom-heat; sandy loam and fibry peat. Winter temp., 48° to 58°; summer, 60° to 85°.

- T. Jamaicaensis* (Jamaica). 10. Yellow. Jamaica. 1822.
 — *lu'cida* (shining-leaved). Pink. May. Cuba. 1822.
 — *sericea* (silky-leaved). 6. Yellow. S. Amer. 1823.

TRIO'STEUM. Feverwort. (From *treis*, three, and *osteon*, a bone; three bony seeds. Nat. ord., *Caprifoli*s [Caprifoliacæ]. Linn., 5-Pentandria 1-Monogynia. Allied to the Honeysuckle.)

Hardy, North American, herbaceous perennials. Division of the plant in spring, or cuttings of the young shoots under a hand-light in the beginning of the summer; light, sandy soil and a little leaf-mould.

- T. angustifolium* (narrow-leaved). 1. Yellow. June. 1699.
 — *perfoliatum* (leaf-stem-pierced). 2. Dark red. June. 1730.

TRIPHA'SIA. (From *triphasios*, triple; calyx three-toothed, and three petals. Nat. ord., *Citronworts* [Aurantiaceæ]. Linn., 5-Pentandria 1-Monogynia.)

Greenhouse evergreen shrub. Cuttings of ripened shoots, at least those getting firm at the base, in sandy soil, in May, under a bell-glass, with a sweet bottom-heat; fibry, sandy loam and a little peat and dried cow-dung. Winter temp., 40° to 50°; summer, 60° to 80°.

T. trifoliata (three-leaved. *Little Orange*). 2. White. June. China. 1798.

TRIPOLY. *A'ster tripolium*.

TRIPTILION. (From *treis*, three, and *ptilon*, a feather; the divisions of the pappus, or seed-crown. Nat. ord., *Composites* [Asteraceæ]. Linn., 19-Syngenesia 1-Æqualis.)

Hardy annuals, from Chili. Seeds in a slight hotbed in the beginning of April; plants pricked out, and either planted out in a sheltered place at the end of May, or bloomed in pots in a cool, airy greenhouse; rich, light soil.

T. cordifolium (heart-leaved). ½. White. July. 1824.

— *spinosum* (spiny). ½. Blue. July. 1827.

TRISTA'NIA. (Named after *Tristan*, a French botanist. Nat. ord., *Myrtle-blooms* [Myrtaceæ]. Linn., 18-Polyadelphia 2-Polyandria.)

Hardy, yellow-flowered evergreens, from New Holland. Cuttings of young, stubby side-shoots, or the points of shoots, two or three inches long, when getting a little firm at the base, in sand, under a glass, in April or May; sandy, fibry loam, and a little peat and charcoal. Winter temp., 35° to 45°.

T. arhore'scens (tree-like). 10. 1820.

— *conferta* (crowded). 6. August. 1805.

— *macrophylla* (large-leaved). 50. White. June. 1800.

— *nerifolia* (oleander-leaved). 6. July. 1804.

TRITELE'JA. (From *treis*, three, and *teleios*, complete; parts of the flower and fruit in threes. Nat. ord., *Lilyworts* [Liliaceæ]. Linn., 6-Hexandria 1-Monogynia. Allied to *Brodiaea*.)

Very pretty little bulbs for a front border. Off-set-bulbs; sandy loam, peat, and leaf-mould; protected in a dry border from frost and damp in winter, or saved in a cold pit or frame.

T. aurea (golden). 1. Yellow. April. Monte Video. 1838.

— *grandiflora* (large-flowered). White. July. N. Amer. 1826.

— *laxa* (loose-umbelled). 1½. Dark blue. July. California. 1832.

— *uniflora* (one-flowered). 1. Blue. July. Buenos Ayres. 1836.

TRI'TOMA. (From *treis*, three, and *temno*, to cut; three sharp edges of the ends of the leaves. Nat. ord., *Lilyworts* [Liliaceæ]. Linn., 6-Hexandria 1-Monogynia. Allied to *Veltheimia*.)

Greenhouse, orange-flowered bulbs, from the

Cape of Good Hope. Division, and by suckers from the roots; rich, sandy soil; as they bloom late, they are better for the protection of a cold pit in late autumn and winter.

T. Burchellii (Burchell's). 1½. 1816.

— *media* (intermediate). 2. April. 1789.

— *pubita* (dwarf). 1. September. 1774.

— *uvaria* (uvaria). 2. August. 1707.

TRITO'NIA. (From *triton*, a weather-cock; variable direction of the stamens. Nat. ord., *Irids* [Iridaceæ]. Linn., 3-Triandria 1-Monogynia. Allied to *Ixia*.)

Bulbs, from the Cape of Good Hope. For culture, see *IXIA*.

T. anigozanthæflora (anigozanthus-flowered). ¾. Yellow. June. 1825.

— *aurea* (golden). 2. Orange. July. 1846.

— *capensis* (Cape). 1. White. September. 1811.

— *concolor* (one-coloured). 1. Yellow. May. 1811.

— *crocata* (saffron). ½. Orange. June. 1758.

— *crispa* (curled-leaved). ¾. Flesh. April. 1787.

— *deusta* (blasted). ¾. Fulvid. May. 1774.

— *fenestralta* (windowed). 1½. Yellow. May. 1801.

— *flava* (yellow). ½. Yellow. February. 1780.

— *fucata* (painted). Red, yellow. May. 1819.

— *lineata* (lined). 2. Variegated. May. 1774.

— *longiflora* (long-flowered). 1. White. May. 1774.

— *minuta* (vermilion). ¾. Scarlet. August. 1795.

— *odorata* (fragrant). ¾. Yellow. June. 1829.

— *paludis* (pale). 1. White. August. 1806.

— *pectinata* (comb-leaved). 1. Yellow. May. 1825.

— *refracta* (refracted). 1. Yellow. May. 1815.

— *roche'nsis* (De la Roche). 1. Yellow. August. 1811.

— *rosea* (rosy). 1½. Pink. June. 1793.

— *securigera* (axe-bearing). ¾. Brown. May. 1774.

— *squalida* (squalid). ¾. Rufous. May. 1774.

— *stridula* (channelled). 1. Blue. May. 1825.

— *tenuiflora* (slender-flowered). 1. Yellow. April. 1811.

— *viridis* (green). ¾. Green. July. 1788.

— *zanthospila* (yellow-spotted). 1. Red, yellow. June. 1825.

TRI'XIS. (From *trixos*, triple; triangular seed-vessel. Nat. ord., *Composites* [Asteraceæ]. Linn., 19-Syngenesia 4-Necessaria.)

White-flowered, blooming in August. *Senecioides* by seed in open ground in April; *auriculata*, by cuttings in sand, under a bell-glass, in May; sandy loam and leaf-mould, and the protection of a warm greenhouse in winter.

T. auriculata (eared). 1. Brazil. 1827. Evergreen.

— *senecioides* (groundsel-like). 1½. Chili. 1821. Annual.

TROCHE'TIA. (Named after *Dutrochet*, the celebrated French physiologist. Nat. ord., *Byttneriads* [Byttneriaceæ]. Linn., 16-Monadelphia 8-Polyandria. Allied to *Dombeya*.)

Stove evergreen shrub. Cuttings of ripened shoots in sand, under a bell-glass, in March, and inserted in a sweet bottom-heat; sandy peat and fibry loam, with a little charcoal and broken freestone. Winter temp., 55° to 65°; summer, 65° to 88°.

T. grandiflora (large-flowered). 6. White, yellow. Mauritius. 1844.

TROCHOCA'RA. (From *trochos*, a wheel, and *karpos*, a fruit. Nat. ord., *Epacrids* [*Epacridaceæ*]. Linn., 5-Pentandria 1-Monogynia. Allied to *Styphelia*.)

Greenhouse evergreen tree. Cuttings of the points of young shoots, or stubby, short side-shoots getting firm at the base, in sand, under a bell-glass, and kept close in a frame or pit, any time in spring or summer; sandy, fibry peat. Winter temp., 40° to 48°. More heat and moisture after flowering, and plenty of air and light before the end of autumn.

T. laurina (laurel-like). 25. Yellow. June. N. Holland. 1829.

TROLLIUS. Globe-Flower. (From *trol*, the German for round; the globular flowers. Nat. ord., *Growfoots* [*Ranunculaceæ*]. Linn., 13-Polyandria 6-Polygynia. Allied to *Helleborus*.)

Hardy, yellow-flowered, herbaceous plants. Divisions of the plant in spring; light, loamy soil, rather moist.

T. acutilis (stemless). 3. July. Cashmere. 1841.

— *aconitifolius* (aconitum-leaved). 2. May. 1829.

— *Altaiicus* (Altaiian). May. Altai. 1836.

— *Americanus* (American). 2. May. N. Amer. 1805.

— *Asiaticus* (Asiatic). 1. Dark orange. May. Siberia. 1759.

— *Caucasicus* (Caucasian). 1. May. Caucasus. 1817.

— *Europæus* (European). 2. May. Britain.

— *albus* (white). 1. Whitish. June. Britain.

— *humilis* (dwarf). 1. May. Austria. 1800.

— *Ledebourii* (Ledebour's). 2. May. Siberia. 1827.

— *napellifolius* (napellus-leaved). 2. May. Europe.

— *patulus* (spreading). 1. Orange. May. Siberia. 1800.

— *Riederianus* (Rieder's). May. Siberia. 1838.

TROPEOLUM. Indian Cress. (From *tropaion*, a trophy. Nat. ord., *Indian Cresses* [*Tropæolaceæ*]. Linn., 8-Octandria 1-Monogynia.)

Annuals, by seed in the open ground in April; tuberous, by division of the roots, and by cuttings; the others by seeds; also by cuttings in sandy loam any time during spring and summer and early autumn; a rich, light soil suits them best. The best tuberous kinds multiply their tubers if the young shoots are laid in the ground as they commence growing. A tuber will generally form at the bends; none of them will stand frost, unless the hardy tuberous ones, and they had better be lifted and kept in dry sand until spring.

HARDY ANNUALS.

T. majus (greater). 6. Orange, yellow. July. Peru. 1686.

— *atro-sanguineum* (dark red). 3. Dark red. August. Peru.

— *minus* (smaller). 1. Orange, yellow. August. Peru. 1596.

HALF-HARDY TUBERS.

T. brachyceras (short-horned). Yellow. Chili. 1830.

— *edule* (eatable). 6. Orange. March. Chili. 1841.

— *Moritzianum* (Mr. Moritz's). 6. Yellow, red. July. Cumana. 1839.

T. tuberosum (tuberous-rooted). 3. Yellow, red. September. Peru. 1836.

— *umbellatum* (umbelled). 3. Rose, orange. June. Pilzham. 1846.

GREENHOUSE EVERGREENS, &c.

T. aduncum (hooked). 3. Yellow. August. New Granada. 1810.

— *azuræum* (azure). 3. Blue. October. Chili. 1842. Herbaceous.

— *crenatiflorum* (scolloped-flowered). 3. Yellow. June. Peru. 1845. Herbaceous.

— *hybridum* (hybrid). 4. Orange. July. Peru.

— *Jarrattii* (Jarratt's). 12. Scarlet, yellow. Santiago. 1836.

— *Lobbianum* (Lobb's). 6. Orange. November. Columbia. 1843. Herbaceous.

— *majus flore-pleno* (larger double-flowered). 6. Orange, yellow. August. Peru. 1686.

— *minus flore-pleno* (smaller double-flowered). 1. Orange, yellow. Peru. 1596.

— *peregrinum* (straggling). 3. Yellow. July. New Granada. 1810.

— *pinna'tum* (leafleted-flowered). 2. Yellow. June. Peru.

— *polyphyllum* (many-leaved). 3. Orange, yellow. June. Chili. 1827.

— *speciosum* (showy). 6. Scarlet. June. S. Amer. 1846. Herbaceous.

— *tricolorum* (three-coloured). Orange, purple. July. Valparaiso. 1828.

TROWEL. This implement, made of iron, from twelve to six inches long in the plate, and half as broad, hollowed like a scoop, and fixed on a short handle to hold with one hand, is convenient in removing small plants with a ball or lump of earth about their roots; lifting bulbous flower-roots after the flowering is past in summer, planting bulbs in patches or little clumps about the borders, for digging small patches, also, in the borders, and sowing hardy annual flower-seeds; likewise for filling mould into small pots, stirring the surface of the earth in pots, and fresh earthing them when necessary.

TRUFFLE. *Tuber magnatum*, Piedmontese Truffle; *T. Bo'rghii*, Italy; *T. moschatum*, Musk Truffle, near Bath; *T. cibarium*, Common Truffle, England. But, besides the tubers, there are other edible fungi known as truffles, viz., *Hydrobates tula'snei*, Spy Park, Wilts; *Melagons'ter Broomeia'nus*, Red Truffle, near Bath.

These edible fungi have not yet been cultivated in England, though the Prussians have succeeded in making them a garden tenant, and Comte de Borch has been equally successful in Italy. The latter cultivates the Piedmont Truffle, and his process is this:—He either employs the soil where the truffle is found, or he prepares an artificial soil of seven parts good garden earth, two well-

pulverized clayey soil, and one oak sawdust, intimately mixed. Decayed oak or beech leaves would be better, probably, than the sawdust. If the natural soil was used, he trenched it two feet deep, removing all the large stones, and adding oak sawdust if necessary, and about one-tenth of powdered snail-shells if the soil was too stiff.

Choosing an aspect rather exposed to the north than the south, where no reflected rays could fall upon it, with every precaution to insure its being thoroughly soaked with pure rain-water, and after waiting a day or two, till it was in a proper state of moisture, he made rows half a foot deep, and in these, at six inches distance, he placed good and sound truffles, each of them being surrounded with two or three handfuls of oak sawdust, taking care to mark the rows accurately. Ridges were then made over each row, to prevent the truffles being injured by too abundant moisture. The bed was then left till the following autumn, with no other precaution than, in dry weather, to take care that it did not become too dry. The result, we are informed, was an abundant harvest every year from October to January.

Bradley, writing, in 1726, of the cultivation of the truffle in England, says, that the truffle may be easily cultivated where there are woods or coppices of oak or hazel, and where the soil is not too stiff, or inclining to chalk. The soil where they are most found is a reddish sandy loam; this will then be the best for our purpose, especially if it has lain long uncultivated. When we are thus provided with the proper soil, we must be sure to let it lie undisturbed till we are ready to plant, which will be in the months of October, November, and December, if the weather be open; for then the truffles are to be found in their full ripeness, and then, likewise, one may find them in a state of putrefaction, which is the time when the seeds are prepared for vegetation. It is in the last state that one ought to gather truffles for planting, or, at least, they should be in perfect ripeness. The proper soil and these rotten truffles being found, we may begin our work as follows:—Open a spot of ground of a convenient space, and take out the earth about eight inches deep, and screen it, that it may be as fine as possible; then lay about two or three

inches thick of this fine earth at the bottom of the trench or open ground, and upon it lay some of the over-ripe truffles, about a foot and a half distance from one another; and, as soon as possible, prepare a thin mud, made of the screened earth and water, well-stirred and mixed together, and pour it on the truffles till the open ground is quite filled up. By this means, in a few hours, the ground will be as closely settled about the truffles as if it had never been dug or disturbed at all, and you may expect a good crop in due time. You must, however, take care to choose your spots of ground in woods or coppices, or such places as are shaded with trees. Their favourite tree is the oak, or the ilex or evergreen oak, as the elm is the favourite of the morille. Notwithstanding these statements, it is quite certain that, at present, the art of cultivating the truffle is not known in England; and it will remain unknown, probably, until we have discovered how its spawn can be prepared as for cultivating the mushroom.

Mr. Gower says he recommended an old truffle-hunter to bury, at the proper depth, some of his truffles that were in a state of decay and unfit for the table under one of the unproductive trees sufficient in stature and in umbrageous development. At the beginning of next winter, when his visit was repeated, he sought for Mr. G., and told him, with great satisfaction, that the scheme had answered; for he had found two or three pounds of excellent truffles beneath the hitherto barren tree. By following this example, proprietors of trees adapted to truffles, and where the proper trees have been planted, may, in a short period, do that which a lapse of years, unassisted, would not effect. Of all trees the cedar of Lebanon is the most favourable to the growth of the truffle.

TRUMPET FLOWER. *Bigno'nia*.

TRUSS is the florist's name for what botanists call an umbel of flowers, where several flowers have their stalks united at one common centre, and thus spring from the root or branch on one stem, as in the auricula, polyanthus, and cowslip. See PIP.

TRYMA'LIIUM. (Not explained. Nat. ord., *Rhamnads* [*Rhamnaceæ*]. Linn., 5-Pentandria 1-Monogynia.)

Greenhouse evergreen shrubs, from New Holland. For culture, see POMADE'RRIS. *P. globulosa* and *P. Wendlandia'na* belong to this genus.

- P. capsula'ris* (capsular). 3. Purple, yellow. April. 1820.
 — *odoratissimum* (sweetest-scented). White. February. 1837.
 — *spathulata* (spatulate). 4. Purple, yellow. April. 1826.

TUBE FLOWER. *Clerode'ndron siphonanthus*.

TU'BER CIBA'RUM. See TRUFFLE.

TUBEROSE. *Polya'nthes tubero'sa*.

TU'LIPA. The Tulip. (From its Persian name, *thoulyban*. Nat. ord., *Lily-worts* [Liliaceæ]. Linn., 6-*Hexandria* 1-*Monogynia*.)

Hardy bulbs. Seeds for new varieties; offsets; arich compost, made of loam, sand, and vegetable mould, suits them best; common kinds may remain for years in the same place if you top-dress them, and do not want to separate the bulbs.

- T. Alta'ica* (Altaian). 1. Yellow. April. Altai.
 — *Biebersteinia'na* (Bieberstein's). 1. Yellow, purple. June. Siberia. 1820.
 — *bislo'ra* (two-flowered). $\frac{1}{2}$. Yellow. April. Russia. 1806.
 — *Bonarotia'na* (Bonaroti's). $1\frac{1}{2}$. Variegated. April. Italy. 1827.
 — *Celsia'na* (Cels's). $1\frac{1}{2}$. Yellow. June. Levant.
 — *Clusia'na* (Clusius's). 1. White, purple. July. Sicily. 1636.
 — *cornu'ta* (horned). 2. Striped. May. Levant. 1816.
 — *Gesneria'na* (Gesner's). 2. Striped. April. Levant. 1577.
 — — *lacinia'ta* (cut-sepa'led). 2. Variegated. April. Levant. 1603.
 — — *lutea* (yellow). $1\frac{1}{2}$. Yellow. April. Levant. 1603.
 — — *ple'na* (double). 1. Variegated. April. Levant. 1603.
 — — *versicolor* (party-coloured). $1\frac{1}{2}$. Variegated. April. Levant. 1603.
 — *hiema'tis* (winter). Red. April. Russia. 1843.
 — *hu'milis* (dwarf). Red. April. Russia. 1840.
 — *male'olens* (ill-smelling). 1. Red, yellow. May. Italy. 1827.
 — — *variega'ta* (variegated). 1. Variegated. May. Italy. 1827.
 — *me'dia* (middle). 1. Scarlet, white. May. 1827.
 — *monta'na* (mountain). 1. Scarlet. July. Persia. 1827.
 — *oculus so'lis* (sun's-eye). 1. Red, blue. April. Italy. 1816.
 — — *Persica* (Persian). 1. Scarlet, black. April. Persia. 1826.
 — *pa'tens* (spreading). 1. White, grey. April. Siberia. 1826.
 — *pra'cox* (early). 1. Scarlet. April. Italy. 1825.
 — *pubes'cens* (downy). 1. Red. April. 1824.
 — *re'pens* (creeping. Russian). 1. Yellow. April. Russia. 1819.
 — *saxa'tilis* (rock). 1. Yellow. April. Crete. 1827.
 — *scabrisca'pa* (rough-stemmed). 2. Red, yellow. April. Italy. 1837.
 — *stella'ta* (starred). $2\frac{1}{2}$. White. April. Cumana. 1827.
 — *strangu'la'ta* (choked). $1\frac{1}{2}$. April.
 — *suave'olens* (sweet-scented). $\frac{3}{4}$. Red, yellow. April. South Europe. 1603.
 — *sybe'stris* (wild). 1. Yellow. April. England.
 — *tri'color* (three-coloured). 1. Scarlet. April. Russia. 1817.
 — *Turcica* (Turkish). 2. Striped. April.

TULIP AS A FLORIST'S FLOWER.—

Florists call tulips *seedlings* until they have bloomed; after this those preserved on account of their good form and habit, as well as the offsets they produce, are called *breeders*. After some years the petals of these become striped, and they are then said to be *broken*. If the striping is good they are said to have a *good strain*; if it be inferior, they are described as having a *bad strain*. A *rectified* tulip is synonymous with a tulip having a good strain.

A *feathered* tulip has a dark-coloured edge round its petals, gradually becoming lighter on the margin next the centre of the petal. The feathering is said to be *light*, if narrow; *heavy*, if broad; and *irregular*, if its inner edge has a broken outline.

A *flamed* tulip is one that has a dark-pointed spot, somewhat in shape like the flame of a candle, in the centre of each petal.

Sometimes a tulip is both *feathered* and *flamed*.

A *Bizard* tulip has a yellow ground, and coloured marks on its petals.

A *Byblomenis* is white, marked with black, lilac, or purple.

A *Rose* is white, with marks of crimson, pink, or scarlet.

The end of September is a good time for preparing the tulip-bed.

Situation.—The aspect should be open to the south and south-east, but well sheltered from the north, north-east, and north-west winds. We prefer a perfectly level surface, because the advantage of rain falling upon the bed and sinking into the earth is more certain than on a slope. The elevation of the site is also a consideration worth serious attention. Wherever it is in the power of the cultivator of tulips intended for exhibition to choose the site, let him choose the happy medium, neither too high nor too low. If there are no shelters already on the spot to defend and protect those choice flowers from the untoward blasts of the northern quarter, there ought to be some prepared. A close wooden paling is the one most ready and effectual, and if made of deal or oak, and well-painted, will last several years. Beech, hornbeam, yew, or arbor vitæ hedges are very excellent; but they require several years' growth before they are high enough to screen the flowers effectually. They might be planted be-

hind the paling, to be advancing in growth; so that when the paling decays the hedges would be high and thick enough to answer the purpose. Whatever shelter is made use of, it should be placed at a sufficient distance from the beds not to draw up the flowers, or prevent a full exposure to light. On these accounts, or for these reasons, the wind-shelters should never exceed six or eight feet high.

Draining.—The tulip loves a deep soil and a dry subsoil. Where there is a good depth of good loam, with a dry, gravelly, or sandy bottom, no more drains are required than one or two formed with drain-pipes and tiles to carry off the water that may fall in wet seasons on the surface. An upright shaft, with a grating on the top to catch this surface-water, will be necessary. When the natural soil is shallow and the subsoil clay, or any other water-retaining substance, set out the bed the desired length and breadth, and cast on one side all the good soil, shovelling the small crumbs; then dig, or hack and shovel out the subsoil till the bed is eighteen inches deep. After that is finished, dig a drain in the centre of the bed six inches deep, and wide enough to allow the operator to lay down first the flat tiles, and then the circular pipes, with holes in the latter to admit the water to escape into them, and then be carried clean away. When the pipes, &c., are laid down, cover them with rubble, and then lay all over the bottom of the bed three or four inches of either small stones, broken clinkers, or brick-ends. Upon this drainage lay a stratum of short straw or small brushwood; make this smooth, and you may consider the drainage complete.

Manure and Soil.—Procure some one-year-old cow-dung; spread over and upon the drains a stratum of this cow-dung two inches thick; then mix about one-sixth of very well-decomposed hotbed dung with the loam thrown out and laid on one side on commencing the operation of draining. If there is not enough soil to make the bed up level as before, procure some good loam for the purpose, mixing it with the same proportion of well-decomposed dung. If the situation is low and damp, it will be advisable to place an edging round the bed six or eight inches deep, of sufficient strength to bear up the soil when it is raised to that height. The best material for an

edging of this kind is blue slate, which may now be had very reasonably; the next best are common flags of slate; and the next, slabs of wood nailed to strong uprights driven into the ground at proper intervals. Mix the top surface with a considerable mixture of river sand; this will cause the bulbs to come out of the soil at taking-up time clean and of a bright brown colour. Should the collection be large, there should be two parallel beds, with a walk between them.

Planting.—The best season is about the beginning of the second week in November, as near the tenth of that month as the weather and the state of the ground will permit. This rule applies to all the country north of London; perhaps, in the milder climate of the southern counties, a week later would be better. Too early planting is injurious, inasmuch as that the leaves will be pushing through before the severe weather has passed away, and would then be in danger, however well protected, of being frost-nipped, and, consequently, injured not only for that year, but also for years to come.

The Method of Planting is governed by the height of the flower-stems; for, as some varieties grow taller than others, the tallest should be in the centre of the bed. This consideration renders it necessary to plant them in rows lengthways of the bed, and not across it. This being determined upon, let the soil of the bed be levelled and made tolerably smooth; then, with a triangular hoe, draw a drill the length of the bed, as near two inches deep as possible. To accomplish this quite straight, it will be necessary to have a line stretched very tightly the whole length of the bed, at such a distance from the centre as will allow the point of the hoe, in drawing the drill, to be exactly in the centre. As soon as the drill is drawn, bring out all the tall growers, and plant them five inches apart at the bottom, giving each a gentle pressure. When the row is finished, thrust in at each end a strong stick; this is to mark where the row of bulbs is when covered up. Of very choice and expensive varieties, some florists recommend covering the bulbs with fine white sand; but, if the soil is mixed with sand, we think the white sand may be dispensed with. Cover them up by drawing the soil over them with a short-toothed rake. After that let the soil on each side of the planted row be stirred

up with a three-pronged fork. Then set the line at the right distance from the centre (we mentioned that the beds should be four feet wide, which would allow nine inches between each of the five rows, and six inches next the edging); the line then must be set at such a distance from the centre, that the next row of bulbs will be exactly nine inches apart from the centre one. Draw the drill the same depth as the first, and plant the next tallest flowers in it. Then mark the row with a stick at each end, and so proceed till the whole is finished; the lowest growers will then be next the paths all round the bed. Each variety must be numbered, and the numbers put in so securely that they cannot be easily displaced.

Shelter is necessary for the flower before and when in bloom. Where the collection is small, and the means small too, this consists merely of hoops, either of wood or iron, with canvass covers or mats to be thrown over the hoops, which should be high enough to keep the covering clear of the flowers. This covering should be applied not only when the plants are in bloom, but also to shelter them from the late frosts that sometimes come after the plants make their appearance, as well as from the cutting winds that often visit us in this country during the early months of the year. This shelter, however, must not be used except when absolutely necessary. Too much shelter only coddles the plants, and makes them so tender that a too sudden exposure, or the least neglect in applying the covering, would be equally as injurious as no shelter at all; therefore, on all favourable occasions, remove the coverings entirely, and let them have the benefit of fine weather and gentle rains.

Where the collection is large, and the means ample, the most convenient width of each bed would be five feet; this will hold five rows nine inches apart. A walk between them may be either three or four feet; the latter will allow more room for the operator and the spectator. Three feet beyond each bed, on the outer sides, place a row of pillars, four and a half inches square, to support the shelter; each pillar may either be let into the ground and well-rammed, or be inserted into an iron or stone socket. These pillars should stand above the surface at least five feet, and at a distance of five feet

from each other. On the top of each pillar a rafter should be placed, to meet a corresponding rafter in the centre of the space just over the centre of the walk. Each rafter, at the junction, must be firmly fastened to a longitudinal piece of wood running the whole length of the beds, the length of the beds depending, of course, upon the number of roots, or size of the collection. There will then be required two rollers of wood of the length of the structure. On each of these nail a sheet of canvass of sufficient width to drop down on each side nearly to the ground. On the top, at the centre, fix a pair of weather-boards, projecting high enough to allow the roller and canvass to go under them, one on each side. This will preserve the canvass from rotting, and so enable it to be used for several years.

TULIP-TREE. *Liriodendron*.

TUNICA. (From *tunica*, a coat; the calyx. Nat. ord., *Clovesworts* [Caryophyllaceæ]. Linn., 10-*Decandria* 2-*Digynia*. Allied to *Dianthus*.)

Hardy herbaceous plants, blooming in July. Seeds in spring, and division of the plants; rich, light soil.

T. dianthoides (pink-like). Red. Candia. 1838.

— *illyrica* (Illyrian). Red. Sicily. 1838.

— *pachynota* (thick-backed). White. Natolia. 1838.

— *saxifraga* (saxifrage). ♀. Pink. Germany. 1774.

— *stricta* (erect). Pink. Altaia. 1834.

TUPA. (The name of one of the species in Chili. Nat. ord., *Lobelians* [Lobeliaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Lobelia*.)

Half-hardy herbaceous perennials. Cuttings, but chiefly by division of the suckers that spring up after the flowering stalks are cut down; rich, sandy loam. When planted out in a bed the surface may be dressed with advantage with rotten dung. Unless in a very sheltered place, they require the protection of a cold pit or a greenhouse in winter; and to flourish well they should be divided and potted, and assisted with a little heat in a bed before planting out in May. *Lobelia Cavendishiana* is united to this genus.

T. arguta (sharp-toothed-leaved). Yellow. September. Chili. 1824.

— *blanda* (charming). 3. Pink. Chili.

— *Fueiilei* (Feuille's). Scarlet. September. Chili. 1824.

— *polyphylla* (many-leaved). Purple. August. Valparaiso. 1832.

— *purpurea* (purple). August. Valparaiso. 1825.

— *salicifolia* (willow-leaved). 6. Red. October. Valparaiso. 1794.

— *secundata* (side-flowering). ♀. White. May. Cape of good Hope. 1794.

TURF may be obtained either by sowing grass seeds, or laying turf obtained from a common or down: if the latter mode can be adopted it is the best, as the turf is obtained at once, and is more

regular than can be obtained under the best circumstances from seed. All the preparation of the soil required is to dig it level a spade deep, provided the subsoil is open, otherwise to have a good drainage effected (*see DRAINING*); to have all large stones removed from the surface, and to have it brought to a perfect level by repeated rollings, and filling up the hollows when necessary, as indicated by the level. The surface being then loosened by raking is ready for the seed or turf.

By Seed.—*See GRASS.*

By Turf.—The season for laying turf is any time from September till April or May, though it will grow at almost any time of the year, even if there is occasion to lay it in summer, and dry weather succeed; for although it will open at the joints, and turn brown, as if dead, yet after the first rain it will close again, and resume its verdure. The turf for this use is cut with an iron instrument called a turving iron, observing to cut the pieces all an equal width, length, and thickness—the proper size is a foot wide, a yard long, and about an inch thick; they should be first marked by line the proper width, length, and depth, with a *racer* or *rutter*; racing them first longwise a foot wide, then across in yard lengths; then proceed to cut them up, having particular regard to cut them level, and equal in thickness, otherwise it will be impossible to lay them level. As you cut, a man or boy should roll each turf up close and tight, the grass side inwards, and pile them up by tens, especially if they are cut by the hundred. If they are cut by the hundred, the price is from sixpence to a shilling, according to the nature of the soil, whether soft and easy to cut, or hard, or stony. A man will cut from three to five, six, or seven hundred in a day, or more, if very soft, easy-cutting turf, and having a person to race them out and roll them up, turf and turf, as they are cut. They are to be laid regularly, turf and turf, unrolling them as you lay them, joining them up quite close, edge to edge, making good all deficiency of broken parts as you go on; and, as soon as laid, it should be well beaten with broad, heavy, wooden beaters, made of flat pieces of elm or oak plank, two inches thick, fifteen or eighteen inches long, and a foot broad, having a long handle fixed slanting in the middle of the upper side; and with these beat the grass regularly all over,

and then roll it well with a heavy roller, observing that the beating and rolling should be repeated in moist weather. If very dry, hot weather succeeds, so as to occasion the turf to shrink and open at the joints, a good watering will be of much advantage.

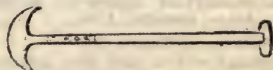
By Inoculation.—If turf is scarce, cut turves into pieces, about three inches square, and plant these, green side up, pretty thickly over the space intended for the lawn. Beat them down into the soil, and water freely; roll frequently, and water also in dry weather. The turf will soon be as close, and the sward as perfect, as if the ground had been entirely turved.

TURF ASHES. *See ASHES.*

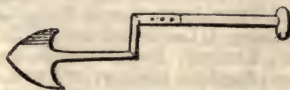
These, which are the basis of charred turf, now becoming so usual a manure, are, according to M. Sprengel, thus constituted:—

Silica	93.10
Alumina	1.35
Oxide of iron	1.73
— manganese	0.32
Lime	0.62
Magnesia	0.33
Potash, combined with sulphuric acid	0.38
Common salt	0.08
Sulphuric acid, combined with potash and lime	1.70
Phosphoric acid, combined with lime and magnesia	0.39

TURF TOOLS are the *Racer* or *Rutter*, for cutting the edges of turf after it has been laid, and for cutting the outlines of the turves when first obtained. It is a thin, sharp-edged implement, somewhat resembling a cheese-cutter, fixed to a handle about four feet long.



The *Turfing Iron* is for raising or



peeling off the turves from the soil. It has an arrow-headed, flat blade, with an angular handle.

A *Turf* or *Daisy Rake* consists of a piece of thin plate iron cut into teeth, with two slips of ash, or other tough wood, between which it is firmly riveted to form a back, and keep it from bending. When put together, the back is an inch and a quarter thick. The wood is bevelled

or nothing half an inch above the interstices of the teeth, at which point the tion is slightly bent longitudinally, to admit the thickness of wood underneath, and give a proper inclination to the handle. The instrument serves both as a grass rake and a daisy rake, and has the advan-



tage over the daisy rakes in common use of being easier cleaned, from the wideness of the interstices between the teeth.

TURNERA. (Named after *Dr. W. Turner*, author of the first English herbal. *Nat. ord.*, *Turnerads* [Turneraceæ]. *Linn.*, 5-Pentandria 3-Trigynia.)

All yellow-flowered. Annuals and biennials, by seeds in a hotbed in spring, and plants bloomed in a greenhouse; shrubs, by seeds, and also by cuttings in sand, under a bell-glass, in spring and summer; sandy loam, fibry peat, and a little charcoal. Winter temp., 50° to 60°; summer, 60° to 85°.

GREENHOUSE ANNUALS.

- T. cistoides* (cistus-like). 4. July. America. 1774.
- *Guianensis* (Guianan). 1. June. Guiana. 1823.
- *hirta* (hairy). 1. June. Brazil. 1818.
- *pu'nila* (dwarf). 4. August. Jamaica. 1796.
- *racemosa* (racemed). 2. July. Siberia. 1789.
- *ulmifolia* (elm-leaved). 3. July. Jamaica. 1733. Biennial.

STOVE EVERGREENS.

- T. Braziliensis* (Brazilian). 1. June. Brazil. 1810.
- *cuneiformis* (wedge-formed). 1. June. S. Amer. 1821.
- *rupe'stris* (rock). 2. July. Guiana. 1824.
- *trioniflora* (trionum-flowered). 2. Brazil. 1812.
- *ulmi-angustifolia* (narrow-elm-leaved). 3. June. Jamaica. 1733.

TURNIPS. *Bra'ssica ra'pa*.

Varieties.—For the first sowings:—Early White Dutch, Early Stone.

For the spring sowings:—Common Round White, Large Round White, Large Green-topped, Large Red-topped, Yellow Dutch, Tankard, French, Small Round French, Swedish, Moscow, or Narva.

Sowing may commence at the end of February, a small portion on a warm border, and some in a moderate hotbed of the first two varieties mentioned. These will be fit for use during April. The sowing on a border to be repeated in the beginning of March, and these will produce throughout May.

These sowings are to be repeated in small proportions, at monthly intervals, until the beginning of July, when the main

crop for the supply of the winter may be inserted; and finally, small crops at the commencement of August and September for spring.

Mode.—Sow broadcast, or in drills twelve inches apart, and very thin; and to enable the seed to be distributed regularly, mix it well with sand before sowing. Each sowing should, if possible, be performed in showery weather; if otherwise, water at the time of insertion, and three times a week afterwards.

Thin the plants when they have four or five leaves about two inches in breadth to at least twelve asunder from each other.

Water must be given frequently and plentifully, as on a regular supply of moisture their goodness, in a great measure, depends.

In November or December, before the setting-in of frost, some of the bulbs must be taken up, and, the tops and roots being removed, preserved under shelter in sand. The young tops are much in request during spring; they must be gathered when very young, otherwise they are strong-flavoured and bit-terish.

To obtain Seed, some of the most perfect roots of those which will withstand the winter may remain where grown; or they may be transplanted in November or February; of the two earliest varieties, sown on a border early in March, some of the bulbs being allowed to remain will produce seed the same autumn.

Manures.—The best manure for turnips is stable-dung; and next in their order, guano, super-phosphate of lime, soot, and salt.

For the injuries to which the turnip is liable, see *ATHALIA*, *AMBURY*, and *BLACK FLY*.

Turnip Cabbage (*Bra'ssica na'po-bra'ssica*), and **Turnip-rooted Cabbage** (*B. cau'lo-ra'pa*). See *KNOHL-KOHL*.

TURNIP-FLY. See *BLACK FLEA*.

TURNSOLE. *Heliotropium*.

TURPENTINE. *Si'lphium terebintha'ceum*.

TURPENTINE-MOTH. See *TORTRIX RESINELLA*.

TURPENTINE-TREE. *Pista'cia terebi'nthus*.

TURRE'A. (Named after *G. Turra*, professor of botany at Padua. *Nat. ord.*, *Meliads* [Meliaceæ]. *Linn.*, 16-Monadelphia 6-Decandria. Allied to *Melia*.)

Stove evergreen trees. Cuttings of firm young shoots in sand, under a bell-glass, in March,

in a hotbed; fibry, sandy loam and vegetable mould. Winter temp., 55° to 60°; summer, 60° to 85°.

T. heterophylla (various-leaved). 20. White.

May. Sierra Leone.

— *lobata* (lobed-leaved). White. July. Sierra Leone. 1843.

— *pinna'ta* (leafleted). 15. Pale rose. March. Sylhet. 1828.

TUSSILA'GO. Coltsfoot. (From *tussis*, a cough; used to allay coughs. Nat. ord., *Compositae* [*Asteraceae*]. Linn., 19-*Syn-genesia* 2-*Superflua*.)

Hardy herbaceous perennials. Division of the roots, which are mostly inclined to spread freely. The flowers of many of the sorts, especially of *fragrans*, are grateful from their scent, and, if kept in pots, are interesting in a greenhouse in the early months of the year; they generally do best in a strong, loamy soil, moderately rich.

T. alba (white. *Butter Bur*). 1. White. March. Europe. 1683.

— *alpina* (alpine). ½. Lilac, purple. April. Austria. 1710.

— *discolor* (two-coloured). ½. Lilac, purple. April. Austria. 1633.

— *Farfara foliis variegatis* (common-variegated-leaved. *Farfara*). ½. Yellow. March. Britain.

— *fragrans* (sweet-scented). 1. White. February. Italy. 1806.

— *frigida* (cold). ½. Pale. May. Lapland. 1710.

— *lavigata* (smooth). ½. Yellow. May. Bohemia. 1816.

— *ni'nea* (snowy). 1. White. April. Switzerland. 1713.

— *palma'ta* (hand-leaved). ½. White. April. Labrador. 1778.

— *purpurea* (purple). Purple. July. Cape of Good Hope. 1825.

— *sagittata* (arrow-leaved). ½. White. April. N. Amer.

TWEE'DIA. (Named after Mr. Tweedie, a botanical collector. Nat. ord., *Asclepiads* [*Asclepiadaceae*]. Linn., 5-*Pentandria* 2-*Digynia*.)

Greenhouse twiners. Seeds in a slight hotbed in spring; cuttings of young shoots, getting firm at the base, in sand, under a bell-glass, in April or May; sandy, fibry loam, with a little peat and leaf-mould; require the protection of a cool greenhouse in winter.

T. caerulea (blue). 3. Blue. Buenos Ayres. 1836.

— *floribunda* (bundle-flowered). Pink. July. Brazil. 1838.

— *versicolor* (changeable-coloured). 3. Blue. July. Tucumania. 1836.

TYLOPHORA. (From *tylos*, a swelling, and *phoreo*, to bear, the swollen pollen masses. Nat. ord., *Asclepiads* [*Asclepiadaceae*]. Linn., 5-*Pentandria* 2-*Digynia*.)

Greenhouse evergreen twiners. Cuttings of either old or young shoots in very sandy loam, and brick and old lime-rubbish, in spring, though any time will do; sandy loam, lime-rubbish, and a little old, dried cow-dung. Winter temp., 40° to 45°, and dry; summer, 60° to 85°, and moist.

T. barbata (bearded). 10. July. N. S. Wales. 1822.

T. callis (slender). 10. Pale purple. July. Sylhet. 1823.

— *grandiflora* (large-flowered). 10. July. N. S. Wales. 1822.

TYTO'NIA. The Water Balsam. (In honour of A. Tyton, a patron of botany. Nat. ord., *Balsams* [*Balsaminaceae*]. Linn., 5-*Pentandria* 1-*Monogynia*.)

This genus is now called *Hydrocera*. Stove aquatic. Seeds sown in spring in a good hotbed, and grown in strong, loamy soil, with the pot immersed in water in a tub, and receiving the high temperature of a plant-stove from 65° to 90°.

T. natans (swimming). Various. August. E. Ind. 1810.

U.

ULCER. See **CANKER.**

U'LEX. Furze. (From the Celtic *ac*, a point; the prickly branches. Nat. ord., *Leguminous Plants* [*Fabaceae*]. Linn., 16-*Monadelphia* 6-*Decandria*.)

Hardy, yellow-flowered evergreens. Seeds in spring; deep, light soil, though not very particular. The gorse, whin, or furze is valuable, not only for its great beauty, but as constituting a valuable fodder and fence-plant. The *Double-blossomed Furze* is very beautiful, and worthy of a place in small gardens, and is propagated by cuttings in spring and autumn, in a shady, sandy border, or under hand-glasses. The *Upright* or *Irish Furze* is propagated in a similar manner, and is also valuable for fodder; but it seldom flowers, and when it does has generally only a few flowers on a plant. We are not aware that it has been raised true from seed, and therefore it is supposed to be not a species, but a variety of *Europa'a* or *na'na*. See **HEDGE.**

U. Europa'a (European. Common). 6. June. Britain.

— *fl're-pl'eno* (double-flowered). 6. May. Britain.

— *na'na* (dwarf). 2. August. Britain.

— *Provincia'tis* (Provence). 4. July. South Europe. 1823.

— *stricta* (erect. Irish). 10. October. Ireland.

ULLO'A. See **JUANULLO'A.**

U'LMUS. The Elm. (From the Celtic name, *ulm*. Nat. ord., *Elmworts* [*Ulmaceae*]. Linn., 5-*Pentandria* 2-*Digynia*.)

Nearly all hardy; all deciduous, and brown-flowered, blooming in April. *Campe'stris* and its allies, by suckers and layers, and by grafting on the *montana*. The latter is also propagated, not by suckers, but by layers, which root freely; but chiefly by seeds, which should be gathered in June as soon as ripe, and sown in light, mellow soil; or dried, and put in bags until the following March or April. Deep, dry, sandy loam suits all the species and varieties, and produces the most valuable timber.

U. alata (winged). 30. N. Amer. 1820.

— *alba* (white. Hungarian). 30. Hungary. 1824.

— *Americana* (white. American). 40. N. Amer.

— *alba* (white-branched). 40. N. Amer.

— *foliis-variegatis* (variegated-leaved).

— *incisa* (cut-leaved). N. Amer.

— *pendula* (drooping). N. Amer. 1820.

— *rubra* (red-branched). 40. N. Amer. 1824.

- U. campestris* (English-field). 80. Britain.
 — *acutifolia* (acute-leaved). 80. Britain.
 — *alba* (white). 80. Britain.
 — *betulaefolia* (birch-leaved). Britain.
 — *Chinensis* (Chinese). China.
 — *concavifolia* (concave-leaved). Britain.
 — *Cornubiensis* (Cornish). 8. Britain.
 — *cucullata* (hooded-leaved).
 — *foliis-auratis* (leaves golden-variegated). Britain.
 — *foliis-variegatis* (leaves variegated with white). Britain.
 — *latifolia* (broad-leaved). 80. Britain.
 — *na'na* (dwarf). 2. Britain.
 — *parvifolia* (small-leaved). 20. Siberia. 1822.
 — *planifolia* (broad-leaved). 20.
 — *Sarniensis* (Jersey). 80. Britain.
 — *stricta* (upright). 80. Britain.
 — *tortuosa* (twisted). Britain.
 — *viminalis* (twiggy). 30. Britain.
 — *virens* (green. Kidbrook). 80. Britain.
 — *viscosa* (clammy). Britain.
 — *vulgaris* (common). 80. Britain.
 — *carpinifolia* (hornbeam-leaved). Britain.
 — *effusa* (spreading-flowered). Britain.
 — *fruticosus* (shrubby). 8. Europe.
 — *fulva* (deep yellow). 60. N. Amer.
 — *glabra* (smooth). 60. Britain.
 — *glandulosa* (glandulous-leaved). Britain.
 — *latifolia* (broad-leaved). Britain.
 — *major* (greater). 80. Britain.
 — *microphylla* (small-leaved). Britain.
 — *pendula* (drooping). Britain.
 — *ramulosa* (branching). Floetbeck.
 — *variegata* (variegated-leaved). Britain.
 — *virgata* (vigorous). 80. Britain.
 — *vulgaris* (common). 60. Britain.
 — *integrifolia* (entire-leaved). 40. E. Ind. 1822.
 — *major* (greater). 40. Britain.
 — *montana* (mountain. Scotch or Wych). 40. Britain.
 — *australis* (southern).
 — *Cevennensis* (Cevennes).
 — *crispata* (curled-leaved). 20. N. Amer.
 — *fastigiata* (pyramidal. Exeter). Exeter. 1826.
 — *major* (greater). Britain.
 — *minor* (less). Britain.
 — *nigra* (black). 40. Ireland.
 — *pendula* (drooping). Britain.
 — *rugosa* (rough-leaved). 40. Britain.
 — *vulgaris* (common). 40. Britain.
 — *suberosa* (cork-barked). 40. Britain.
 — *alba* (white-barked). Britain.
 — *angustifolia* (narrow-leaved). Hertford.
 — *erecta* (upright). 80. Britain.
 — *foliis-variegatis* (variegated-leaved). 80. Britain.
 — *latifolia* (broad-leaved). Hertford.
 — *vulgaris* (common). 80. Holland.

UMBILICUS. (From *umbilicus*, the navel; concave leaves of some species. Nat. ord., *Houseleeks* [Crassulacæ]. Linn., 10-*Decandria* 4-*Pentagynia*. Allied to *Sedum*.)

Hardy herbaceous succulents. Seeds, divisions, and cuttings of offsets; sandy loam and peat. They do best in the recesses of rock-work.

- U. erectus* (upright). Yellow. England.
 — *horizontalis* (horizontal). Yellow. June. Sicily. 1828.
 — *Lievenii* (Lieven's). Red. May. Caucasus. 1836.
 — *lutea* (yellow). $\frac{1}{2}$. Yellow. June. England.

- U. pendulinus* (drooping). Yellow. June. Britain.
 — *serratus* (saw-edge-leaved). Purple. June. Siberia. 1732.

- *spinosa* (spiny). $\frac{1}{2}$. White. June. Siberia. 1790.

UMBRELLAWORT. *Oxybaphus*.

UNCARIA. The following stove evergreen climbers, with pale-red flowers, should be added to *Nauclea* :—

- N. Gambir* (Gambier). 10. E. Ind. 1825.
 — *sessilifruticus* (stalkless-fruited). 10. E. Ind. 1829.

UNDERGROUND ONION. See **POTATO ONION.**

UNTRUE. See **SPORTING.**

UPAS-TREE. *Antiaris*.

URANIA. (From *ouranos*, sublime; the stateliness of the plant. Nat. ord., *Musads* [Musacæ]. Linn., 6-*Hexandria* 1-*Monogynia*.)

We have retained this the old name; but it is properly *Ravenala*. Stove herbaceous. Seeds in a hotbed, in spring; suckers and divisions; sandy, fibry loam, a little dried leaf-mould, and charcoal. Winter temp., 55° to 65°; summer, 65° to 90°, and a moist atmosphere.

- U. speciosa* (showy). 20. Red. Madagascar.

URARIA. (From *oura*, a tail; the bractes. Nat. ord., *Leguminosae Plants* [Fabacæ]. Linn., 17-*Diadelphina* 4-*Decandria*. Allied to *Hedysarum*.)

Stove evergreens. Seeds in a hotbed in spring; and cuttings of side-shoots in May, in sand, under a bell-glass; sandy loam and fibry peat. Winter temp., 55° to 65°; summer, 65° to 85°.

- U. alopecuroides* (foxtail-like). White. July. E. Ind. 1822.

- *comosa* (tufted). 3. Purple. July. E. Ind. 1818.

- *crinita* (hairy). 2. Pink. July. E. Ind.

- *hamosa* (hooked). White. June. E. Ind. 1827.

- *lagocéphala* (hare-headed). 2. Yellow. July. Brazil. 1824.

- *lagopodioides* (hare's-foot-like). 1 $\frac{1}{2}$. Purple. July. China. 1790.

- *lagopus* (hare's-foot). 7. Purple. June. Nepal. 1824.

- *picta* (painted-leaved). 3. Purple. July. Guinea. 1788.

- *urceolata* (pitcher). 3. Purple. July. Guinea. 1788.

URCEOLINA. (From *urceolus*, a small cup, or pitcher; from the smallness of the cup, or nectary, inside the flower. Nat. ord., *Amaryllids* [Amaryllidacæ]. Linn., 6-*Hexandria* 1-*Monogynia*. Allied to *Clinanthus*.)

Half-hardy bulb, growing in shady woods, and flowering from June to November, and requires perfect rest in winter. Offset-bulbs; rich, fibry loam; the protection of a cold pit, and kept dry in winter.

- U. pendula* (hanging-down). Yellow. Green. June. Peru. 1837.

URED. See **BARBERRY** and **MILDEW.**

URINE. (See **DUNG**.) The urine of all animals is excellent as a manure; but it must be given only to plants whilst

growing, and in a diluted state. One of the most fertilizing of liquid-manures is composed of cabbage-leaves, and other vegetable refuse, putrefied in the urine from a house or stable, and diluted with three times its quantity of water when applied. If mixed with bleaching powder (chloride of lime), there will be no offensive smell. Gypsum mixed with urine, or a little oil of vitriol poured into it, adds to its utility as a manure. Sulphate of iron, in the proportion of seven pounds to every hundred of urine, prevents the escape of ammonia during putrefaction.

UROPE'TALON. (From *oura*, a tail, and *petalon*, a petal; the petals are lengthened out into tail-like appendages. Nat. ord., *Lilyworts* [Liliaceæ]. Linn., 6-*Hexandria* 1-*Monogynia*. Alliance near *Albuca*.)

Offsets in spring; sandy, light loam and leaf-mould. Must be kept dry in winter, either by protecting them in a border, or placing them in a cold pit; perhaps best by potting them, and keeping them in a pit or greenhouse, and dry, until growth has fairly commenced.

U. fulvum (tawny). 2. Green, red. July. Mogadore. 1808.

— *longifolium* (long-leaved). 2. Purple, blue. August. Mozambique. 1825.

— *serotinum* (late-flowering). 2. Green, red. July. Spain. 1629.

UVA'RIA. (From *uva*, a cluster of grapes; the resemblance of the fruit. Nat. ord., *Anonads* [Anonaceæ]. Linn., 13-*Polyandria* 6-*Polygynia*.)

Stove evergreens, brown-flowered, except where otherwise mentioned. Cuttings of firm side-shoots in May, in sand, under a bell-glass, in heat; sandy loam and fibry peat. Winter temp., 55° to 50°; summer, 60° to 85°.

U. acuminata (sharp-pointed). 6. Guiana. 1820.

— *aromatica* (aromatic). 6. Guiana. 1820.

— *esculentata* (eatable). 10. Madras. 1818.

— *fasciculata* (bundled). E. Ind. 1823.

— *fuscata* (brown). 5. Guiana. 1823.

— *Gaertneri* (Gaertner's). 6. E. Ind. 1820.

— *longiflora* (long-flowered). Purple. E. Ind. 1833.

— *longifolia* (long-leaved). 4. Bengal. 1820.

— *lucida* (shining). Africa. 1825.

— *lutea* (yellow). 6. Greenish-yellow. E. Ind. 1822.

— *Narum* (Narua). 10. Malabar.

— *nitidissima* (most-shining). Blue. Caledonia. 1825.

— *odorata* (sweet-scented). E. Ind. 1804.

— *tomentosa* (woolly). 6. E. Ind. 1822.

— *velutina* (velvety). 6. E. Ind. 1823.

— *zeila* (shaggy). E. Ind. 1831.

— *Zeylanica* (Ceylon). 20. Scarlet. Ceylon. 1794.

UVULA'RIA. (Formerly used in diseases of the uvula. Nat. ord., *Melanths* [Melanthaceæ]. Linn., 6-*Hexandria* 1-*Monogynia*.)

Hardy, North American, herbaceous perennials;

yellow-flowered, except *grandiflora*. Division of the plant in spring; light, sandy loam.

U. flava (yellow). 2. May. 1810.

— *grandiflora* (large-flowered). 1. Purple. May. 1802.

— *lanceolata* (spear-leaved). 1. July. 1710.

— *perfoliata* (leaf-stem-pierced). 2. May. 1810.

— *puberula* (downy). 2. May. 1824.

— *sessifolia* (stalkless-leaved). 2. June. 1790.

V.

VACCINIUM. Whortleberry. (The derivation is doubtful, perhaps from *bacca*, a berry. Nat. ord., *Cranberries* [Vacciniaceæ]. Linn., 8-*Octandria* 1-*Monogynia*.)

Seeds in autumn; cuttings under a hand-light in summer; suckers; divisions; rooting stems from trailing along the ground; very sandy loam; if a portion of peat all the better. All hardy except *Caracasacum*, *leucostomum*, *meridionale*, and *Rollisoni*, and all deciduous, and natives of North America, unless otherwise mentioned.

V. albiflorum (white-flowered). White. May. 1833.

— *angustifolium* (narrow-leaved). 2. Pale yellow. May. 1776.

— *arborescens* (tree). White, red. 1765.

— *buxifolium* (box-leaved). 1. White. May.

— *Canadense* (Canadian). 1. White, red. May. 1825.

— *Caracasacum* (Caracas). 6. White. July. Caracas. 1825. Stove evergreen.

— *cæspitosum* (turfy). 2. White. May. 1823.

— *corymbosum* (corymbed). 7. White. May. 1765.

— *angustifolium* (narrow-leaved). 3. White. 1767.

— *fuscatum* (browned). 2. White, pink. June. 1770.

— *virgatum* (twiggy). 3. White, red. April. 1767.

— *crassifolium* (thick-leaved). 1. White. June. 1787.

— *dumosum* (bushy). 3. White. May. 1774.

— *humile* (humble). 2. White. May. 1774.

— *elongatum* (elongated). 2. White. July. 1812.

— *erythrinum* (red-twigged). 1½. Scarlet. Java. 1852.

— *frondosum* (leafy). 3. White, green. May. 1761.

— *venustum* (beautiful). 3. Pink. June. 1770.

— *galezans* (gale-leaved). 2. White. May. 1806.

— *glabrum* (smooth). 2. Pink. July. 1812.

— *grandiflorum* (large-flowered). 2. White. July. 1812.

— *humifolium* (trailing). 2. White. 1827.

— *leucostomum* (white-lipped). 2. Scarlet, white. Peru. 1847. Greenhouse evergreen.

— *ligustrinum* (privet-leaved). 3. Purple. May.

— *meridionale* (meridional). 2. Red, white. April. Jamaica. 1778. Stove evergreen.

— *minutiflorum* (small-flowered). 2. White. 1812.

— *myrsinites* (myrsine-leaved). 1½. Purple. May.

— *lanceolata* (spear-leaved). 1½. Purple. May.

— *obtusum* (blunt). 1½. Purple. May.

— *myrtifolium* (myrtle-leaved). 1. White. June. 1812.

— *myrtilloides* (myrtillus-like). 1½. Pink. June. 1776.

— *myrtillus* (myrtle). *Bilberry*. 1½. Pink. May. Britain,

- V. myrtillus a'lbis-ba'ccis* (white-berried). Green. May. Britain.
 — *nitidum* (glossy). 1½. Pink. May. 1794.
 — *decumbens* (lying-down). ¾. Pink. May. 1794.
 — *ovatum* (egg-leaved). 2. Pink. May. N. IV. Amer. 1826.
 — *padifolium* (bird-cherry-leaved). Pale green. July. Madeira. 1777.
 — *palidum* (pale). 2. White. May. 1774.
 — *Pennsylvanicum* (Pennsylvanian). 1½. White, blue. June. 1772.
 — *resinosum* (resinous). 4. Purple, green. May. 1782.
 — *rubescens* (yellowish). 2. Reddish-yellow. June. 1804.
 — *rubescens* (ruddy). 3. Yellow, green. May. 1773.
 — *Rollisoni* (Rollison's). 2. Scarlet. August. Java Mountains. 1851. Greenhouse.
 — *stamineum* (long-stamened). 2. White. May. 1772.
 — *album* (white-flowered). 2. White. Mexico.
 — *vilginosum* (bog. Bleaberry). 2. Flesh. April. Britain.
 — *vitis idæa* (cowberry). ¾. Pink. May. Britain.

VALERIANA. Valerian. (Named after *Valerius*, who first used it in medicine. Nat. ord., *Valerianaceæ* [Valerianaceæ]. Linn., 3-Triandria 1-Monogynia.)

Hardy herbaceous perennials. Divisions of the root in spring, and seeds; common garden-soil; the tenderer sorts should have a dry place.

- V. alliariaefolia* (alliarial-leaved). 1½. Red. June. Caucasus. 1826.
 — *asarifolia* (asarum-leaved). 1. Red. June. Crete. 1824.
 — *Cape'nsis* (Cape). ¾. Red. June. Cape of Good Hope. 1816.
 — *Celtica* (Celtic). 1. White. June. Switzerland. 1784.
 — *dioica* (dioecious). 1. Flesh. June. Britain.
 — *elongata* (lengthened). ¾. Yellow. June. Austria. 1812.
 — *globulariaefolia* (globularia-leaved). Red. June. Pyrenees.
 — *intermedia* (intermediate). 1. White. June. Pyrenees. 1818.
 — *montana* (mountain). 1. Light red. July. Switzerland. 1748.
 — *napus* (turnip-rooted). White. Mexico. 1839.
 — *officinale* (shop). 3. Flesh. June. Britain.
 — *phu'* (phu). 3. White. August. Germany. 1597.
 — *Pyrenæica* (Pyrenean). 3. Pink. August. Scotland.
 — *sativica* (lavender). 1½. Red. June. France. 1824.
 — *sambucifolia* (elder-leaved). 3. White. July. Germany. 1819.
 — *saxatilis* (rock). ¾. White. July. Austria. 1740.
 — *sisymbriifolia* (sisymbrium-leaved). 1. Red. June. South Europe. 1820.
 — *supina* (flat-lying). ¾. White, red. July. Switzerland. 1822.
 — *trippteris* (three-winged). 1. White. May. Switzerland. 1752.
 — *tuberosa* (tuberous-rooted). 1½. Light, red. June. South Europe. 1629.

VALERIANELLA. Lamb's Lettuce. (A diminutive of *Valerian*. Nat. ord., *Valerianaceæ* [Valerianaceæ]. Linn., 3-Triandria 1-Monogynia.)

Hardy annuals. Seeds in the open border, in spring. See CORN SALAD.

- V. congesta* (crowded-flowered). 1. Red. July. Columbia. 1826.
 — *echinata* (prickly-capsuled). 1. Pink. July. South Europe. 1807.
 — *olitovria* (salad). ¾. Blue. April. Britain.
VALLA'RIA. (From *vallo*, to inclose; used for fences in Java. Nat. ord., *Dogbanes* [Apocynaceæ]. Linn., 5-Pentandria 1-Monogynia.)

Stove evergreen twiner. Cuttings of short, firm, stubby side-shoots in sandy soil, under a glass, in heat, in May; sandy, fibry loam, and fibry peat. Winter temp., 55° to 60°; summer, 60° to 85°.

- V. pergularia* (trellis). 10. White. E. Ind. 1819.
VALLÉ'SIA. (Named after *F. Vallesio*, physician to Philip II. of Spain. Nat. ord., *Dogbanes* [Apocynaceæ]. Linn., 5-Pentandria 1-Monogynia.)

Stove, white-flowered evergreens. Cuttings of young shoots, getting firm, in sand, under a bell-glass in heat; sandy loam and fibry peat. Winter temp., 55° to 60°; summer, 60° to 85°.

- V. cymbifolia* (boat-leaved). 4. June. Mexico. 1821.
 — *dichotoma* (forked). 8. May. Peru. 1822.

VALLISNERIA. (Named after *A. Vallisneri*, an Italian botanist. Nat. ord., *Hydrocharadæ* [Hydrochaidraceæ]. Linn., 22-Diceia 2 Diandria.)

A floating, fresh-water perennial, whose flowers live under water, except just at the time of impregnation. Division; rich loam, in a good-sized pot, plunged deep in a tub or cistern of water. Winter temp., 45° to 60°; summer, 60° to 80°.

- V. spiralis* (spiral). Brown. July. South Europe. 1818.

VALLO'TA. (Named after *P. Valtot*, a French botanist. Nat. ord., *Amaryllids* [Amaryllidaceæ]. Linn., 6-Hexandria 1-Monogynia. Allied to *Cyrtanthus*.)

With the exception of Dr. Herbert, no systematic botanist has pointed out the real affinity of Vallota. A cross-seedling, by its pollen, has been obtained by Mr. Beaton from *Cyrtanthus obliquus*, which no one could distinguish from a Vallota of the same age. It has not yet flowered. Greenhouse, scarlet-flowered bulbs, from the Cape of Good Hope. Offsets; sandy loam and peat, and leaf-mould. Winter temp., 40° to 45°, and dry; summer, 60° to 75°.

- V. purpurea* (purple). 1½. May. 1774.
 — *major* (greater). May. 1774.
 — *minor* (smaller). 1. May. 1774.

VANDA. (The Sanscrit name of the first-found species. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-Gynandria 1-Monandria.)

Stove orchids, grown in baskets. See ORCHIDS.

- V. Batemanii* (Mr. Bateman's). 3. Crimson, yellow. June. Moluccas. 1845.
 — *cærulea* (light blue). Sylhet.
 — *cristata* (crested). 1. Green, purple. April. Nepaul. 1818.

V. cruenta (bloody). 2. Red. August. China. 1819.

— *Cumingii* (Cuming's). Brown, yellow. July. Philippines. 1837.

— *fu'ra* (dusky). Brown, white. December. China. 1844.

— *fu'sco-viridis* (brown-and-green). Brown, greenish-yellow. September.

— *insignis* (showy). 2. Crimson, brown, white. February. Java. 1848.

— *lamella'ta* (layered). Pale. August. Manilla. 1837.

— *Lo'wei* (Lowe's). Yellow, brown. February. Borneo. 1846.

— *peduncula'ris* (long-flower-stalked). July. Ceylon. 1840.

— *Roxbu'rgii* (Roxburgh's). 1½. White, purple. July. China. 1810.

— *tessella'ta* (chequered). 1. White, purple. July. China. 1816.

— *unicolor* (one-coloured). 5. Brown.

— *sua'vis* (sweet-scented). White, brown. September. Java. 1847.

— *te'res* (cylindric-leaved). 2. Red, yellow. March. Sylhet. 1828.

— *viola'cea* (violet-tipped). White, violet. May. Manilla. 1839.

VANDE'LLIA. (Named after *L. Vandelli*, a Portuguese botanist. Nat. ord., *Figworts* [Scrophulariaceæ]. Linn., 14-*Didynamia* 2-*Angiospermia*. Allied to *Torenia*.)

Tender annuals. Seeds in a hotbed, in spring; plants pricked off, and bloomed chiefly in the greenhouse, in light, rich soil.

V. crusta'cea (shelly). Blue. June. India. 1816.

— *diffu'sa* (spreading). 1. White. July. Santa Cruz. 1824.

— *hirsu'ta* (hairy). Blue. June. India. 1823.

— *Roxbu'rgii* (Roxburgh's). Purple. July. Coromandel. 1818.

VANGUE'RIA. (*Voa-vanguer*, the name of *edulis* in Madagascar. Nat. ord., *Cinchonads* [Cinchonaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Guettardia*.)

It produces a good dessert fruit. Stove evergreen. Cuttings of half-ripened shoots in sand, under a bell-glass; sandy peat and fibry loam. Winter temp., 50° to 55°; summer, 60° to 85°.

V. edu'tis (eatable). 10. White. Madagascar. 1809.

VANI'LLA. (A diminutive of *vaina*, the Spanish for sheath; shape of seed-pod. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-*Gynandria* 1-*Monandria*.)

Stove orchids, grown on blocks; white-flowered, where not otherwise specified. (See *ORCHIDS*.) The Vanilla of commerce is, or should be, the dried fruit of *V. planifo'lia*.

V. acutifo'lia (pointed-leaved). Caraccas. 1841.

— *Africa'na* (African). Sierra Leone. 1843.

— *aroma'tica* (aromatic). 10. July. South Europe. 1739.

— *bicolor* (two-coloured). Dull red. Guiana.

— *clavicula'ta* (tendrilled). Cuba. 1838.

— *planifo'lia* (smooth-leaved). 10. May. W. Ind. 1800.

— *Pompo'na* (Pompona). Mexico.

VAPOUREE MOTH. *Orygia*.

VARIEGATED LAUREL. *Au'cuba*.

VASCO'A. This genus is incorporated with *Rafnia*, and the following yellow-flowered evergreens from the Cape of Good Hope should be added to it:—

R. amplexicau'tis (stem-clasping). 4. July. 1816.

— *perfolia'ta* (leaf-stem-pierced). 4. July. 1812.

VEGETABLE MANURES. See *GREEN MANURES*, *ASHES*, and *MANURES*.

VEGETABLE MARROW. *Cucu'rbita ovi'fera*.

VE'LLA. Cress Rocket. (From *velar*, the Celtic name of cress. Nat. ord., *Crucifers* [Brassicaceæ]. Linn., 15-*Tetradynamia*.)

Half-hardy evergreen. Cuttings of young shoots in sand, under a hand-light, in a shady place, in summer; a dry, airy, warm situation, such as in raised rock-work. North of London, in exposed, damp places, it will require a little protection in winter.

V. pseu-do-cy'tisus (bastard-cytisus). 3. Yellow. April. Spain. 1759.

VELLE'JA. (Named after *Major Velley*, who studied sea-weeds. Nat. ord., *Goodeniads* [Goodeniaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Euthales*.)

Greenhouse, yellow-flowered evergreens, from New Holland. Division; sandy loam and peat. Winter temp., 35° to 45°.

V. lanceola'ta (spear-leaved). 1841.

— *lyra'ta* (lyre-leaved). ½. April. 1819.

— *parado'xa* (paradoxical). ½. July. 1824.

— *spathula'ta* (spatulate). ½. April. 1825.

VELLO'ZIA. (Named after a Spanish botanist. Nat. ord., *Bloodroots* [Hæmodoraceæ]. Linn., 6-*Hexandria* 1-*Monogynia*. Allied to *Barbacenia*.)

The Vellozias are perennial Lilies, from two to ten feet high, having trunks as large as a man's body, branching, and having tufts of leaves on the top like the *Yucca*. Greenhouse herbaceous. Division of the plant in spring; sandy loam and fibry peat. Winter temp., 40° to 50°; summer, 60° to 80°.

V. lanceola'ta (spear-leaved). Yellow. Swan River. 1841.

VELTHEI'MIA. (Named after *F. A. Veltheim*, a German botanist. Nat. ord., *Lilyworts* [Liliaceæ]. Linn., 6-*Hexandria* 1-*Monogynia*. Allied to *Tritoma*.)

Greenhouse bulbs, from Cape of Good Hope, with flesh-coloured flowers. Offsets from the bulbs; rich, sandy loam. Winter temp., 35° to 45°.

V. glau'ca (milky-green). 2. March. 1781.

— *rubescen'ti-purpu'rea* (red-purple). 1. Red, purple. July. 1834.

— *interme'dia* (intermediate). 1½. April. 1800.

— *viridifo'lia* (green-leaved). 2. August. 1768.

VENTILATION. See *GREENHOUSE*.

VENUS'S FLY-TRAP. *Dione'a musci'pula*.

VENUS'S HAIR. *Adia'ntum capi'llus Ve'neris*.

VENUS'S LOOKING-GLASS. *Specularia speculum*.

VENUS'S NAVELWORT. *Omphalodes*.

VENUS'S SUMACH. *Rhus cotinus*.

VERATRUM. (From *vere*, truly, and *ater*, black; colour of the roots. Nat. ord., *Melanths* [Melanthaceæ]. Linn., 23-Polygamia 1-Monœcia.)

The plants in this order are all poisonous. Hardy herbaceous perennials. Seeds and divisions in spring; deep, rich loam.

V. album (white). 5. White. July. Europe. 1548.

— *angustifolium* (narrow-leaved). 2. Green. June. N. Amer. 1823.

— *frigidum* (cold). 3. Black. June. Angan-gulo. 1846.

— *Lobelia num* (Lobel's). White. June. South Europe. 1818.

— *nigrum* (dark-flowered). 3. Dark purple. June. Siberia. 1596.

— *parviflorum* (small-flowered). 2. Green. June. Carolina. 1809.

— *viride* (green-flowered). 5. Green. July. N. Amer. 1742.

VERBASNUM. Mullein. (From *barbas-cum*, bearded; the bearded stamens. Nat. ord., *Figworts* [Scrophulariaceæ]. Linn., 5-Pentandria 1-Monogynia.)

All yellow-flowered where not otherwise mentioned. All freely by seeds; perennials also by division of the roots in spring.

HARDY HERBACEOUS.

V. Zethiopicum (Ethiopian). May. Mount Sinai. 1825.

— *alopecurus* (foxtail). 3. July. France. 1820.

— *Austriacum* (Austrian). 5. July. Austria. 1818.

— *betonicaefolium* (betony-leaved). 2. July. Armenia. 1825.

— *chrysæum* (golden). June. Palestine. 1827.

— *collinum* (hill). 3. July. Germany. 1820.

— *cupreum* (copper-coloured). 3. Brown. July. Caucasus. 1798.

— *fasciculatum* (clustered). May. Mount Sinai. 1826.

— *hyoserifolium* (hyoseris-leaved). June. Levant. 1829.

— *lanatum* (woolly). 3. July. Italy. 1825.

— *nigrum* (black-rooted). 2. July. England.

— *orientale* (eastern). 2. July. Caucasus. 1821.

— *pheniceum* (purple). 3. Purple. July. South Europe. 1796.

— *plicatum* (plaited). July. Greece. 1816.

— *spinosum* (thorny). 1. Purple. July. Crete. 1824. Evergreen.

— *thapsosides* (thapsos-like). July. Portugal. 1819.

— *triste* (dark). 2. Yellow, red. July. South Europe. 1688.

— *undulatum* (waved). 3. July. South Europe. 1819.

HARDY BIENNIALS.

V. auriculatum (eared-leaved). June. Levant. 1826.

— *Bannaeticum* (Hungarian). July. Hungary. 1820.

— *bipinnatifidum* (doubly leaflet-cut). June. Tauria. 1813.

— *Boerhaavii* (Boerhaave's). 2. July. South Europe. 1731. Annual.

— *candidissima* (whitest). 4. May. Naples. 1823.

— *ceratophyllum* (horn-leaved). June. Levant. 1829.

— *Chairii* (Chair's). 3. July. France. 1821.

— *cuspidatum* (pointed). 4. May. Vienna. 1817.

V. densiflorum (dense-flowered). January. Italy. 1825.

— *formosum* (handsome). 2. July. Russia. 1818.

— *glabrum* (smooth). 2. July. Europe. 1805.

— *gnaphaloides* (gnaphalium-like). 2. July. Caucasus. 1825.

— *gossypinum* (cottony). 4. July. Caucasus. 1820.

— *grandiflorum* (large-flowered). 4. July. Europe. 1820.

— *hamorrhoidale* (blood-coloured). 2. White, purple. July. Madeira. 1777. Greenhouse.

— *Indicum* (Indian). July. Nepal.

— *leptostachyum* (slender-spiked). 3. July. South France. 1825.

— *longifolium* (long-leaved). 3. July. Naples. 1824.

— *lychnitis* (lychnitis). 3. July. Britain.

— *lyratum* (lyre-leaved). 4. June. Spain. 1819.

— *macranthum* (large-flowered). 3. July. Portugal. 1820.

— *majale* (hog). 3. July. Montpelier. 1817.

— *Monspessulæum* (Montpelier). June. South France. 1824.

— *montanum* (mountain). 3. July. France. 1819.

— *niveum* (snowy). 3. May. Naples. 1823.

— *ovatum* (egg-leaved). 3. July. Spain. 1824.

— *pinnatifidum* (leaflet-cut). 1. July. Archipelago. 1788. Greenhouse.

— *pulverulentum* (powdered). 3. July. England.

— *pyramidalum* (pyramidal). 3. July. Caucasus. 1804.

— *repandum* (wavy-edged). 3. July. Europe. 1813.

— *rotundifolium* (round-leaved). 4. July. Italy. 1823.

— *rubiginosum* (rusty). 4. Yellow, red. July. Hungary. 1817.

— *rugulosum* (wrinkled-leaved). June. South Europe. 1820.

— *sinuatum* (indented-leaved). 2. July. South Europe. 1570.

— *spectabile* (showy). 2. Yellow, purple. July. Tauria. 1820.

— *Stevensii* (Stevens'). 5. July. Siberia. 1821.

— *Tauricum* (Taurian). 2. Yellow, purple. August. Tauria. 1839.

— *thapsus* (shepherd's-club). 6. July.

— *elongatum* (lengthened). July. Europe. 1813.

— *versiflorum* (inverted-flowered). 3. Purple. July. Bohemia. 1823.

— *virgatum* (twiggy). 5. August. Britain.

VERBENA. Vervain. (From the Celtic *Ferfain*. Nat. ord., *Verbenas* [Verbenaceæ]. Linn., 14-Didynamia 2-Angiosper-mia.)

Annuals and biennials, by seed in a slight hot-bed in March, or in the open air in April; perennials, by division, layers, and cuttings; tender kinds, chiefly by cuttings, unless when seed is employed to obtain new varieties. These varieties are struck generally in spring and autumn for blooming in pots, but chiefly for decorating the flower-garden beds. A rich, sandy loam suits them best. The points of the shoots in spring strike best in a little peat. In autumn they can scarcely be kept too cool. The smallest piece will form a better plant than a larger piece.

GREENHOUSE HERBACEOUS.

V. alata (winged-stemmed). 5. Rosy. August. Monte Video. 1828.

— *ameña* (pleasing). 1. Pinkish-purple. July. Mexico.

— *Arraniana* (Lady Arran's). 1½. Purple. August. 1836.

— *barbata* (bearded). 1. Pink. August. Mexico. 1826.

- V. chamædrifolia* (germander-leaved). 1. Scarlet. August. Buenos Ayres. 1827.
 — *diffusa* (spreading). 3. Blue. July. N. Amer. 1818.
 — *glandulosa* (glanded). 2. Pale. July. 1832.
 — *incisa* (cut-leaved). 2. Red. August. Panama. 1836.
 — *pulchella* (neat). 1. Purple. July. Buenos Ayres. 1827.
 — *radicans* (rooting). $\frac{1}{2}$. Lilac. July. Chili. 1832.
 — *sulphurea* (sulphur-coloured). 1. Sulphur. July. Chili. 1832.
 — *teucrioides* (germander-like). 2. Purplish. July. Monte Video. 1837.
 — *Tweedia* (Tweedie's). 1. Scarlet. August. Brazil. 1834.
 — *veno'sa* (strong-veined). $2\frac{1}{2}$. Rosy. July. Buenos Ayres. 1830.

HARDY ANNUALS AND BIENNIALS.

- V. Aubletia* (Aublet's). 1. Purple. August. N. Amer. 1774. Biennial.
 — *bracteosa* (bracted). 1. Pink. July. Mexico. 1820. Biennial.
 — *cane'scens* (hoary). $\frac{1}{2}$. Blue. July. Mexico. 1824.
 — *elegans* (elegant). $\frac{1}{2}$. Blue. July. Mexico. 1826. Biennial.
 — *lasiolepis* (hairy-spiked). 2. Purple. July. California. 1826. Biennial.
 — *litoralis* (shore). 3. Grey. June. S. Amer. 1832.
 — *multifida* (much-cut). Blue. July. Peru. 1818.
 — *pinnatifida* (leaflet-cut). 4. Purple. July. N. Amer. 1810. Biennial.
 — *trifida* (three-cleft). 1. Purple. August. Mexico. 1818.

HARDY HERBACEOUS.

- V. Aubletia Drummondii* (Drummond's Aubletia). $\frac{1}{2}$. Lilac. July. Texas.
 — *Lambertia* (Lambert's). $\frac{1}{2}$. Purple. July. S. Amer.
 — — *rosea* (rosy). $\frac{1}{2}$. Pink. July. Carolina.
 — *multifida alba* (white). White. May. Chili. 1839.
 — *Sabini* (Sabine's). $\frac{1}{2}$. Purplish. July. Chili. 1834.
 — *officinale-veno'sa* (veined-shop). Bluish. August. Oxford. 1837.
 — *polystachya* (many-spiked). 4. Red. July. Mexico. 1820.
 — *pulchella-coro'lla-albida* (beautiful-whitish-coro'llad). 1. Whitish. July. 1834.
 — *rugosa* (wrinkled-leaved). 2. Violet. July. Buenos Ayres. 1833.
 — *scurfa* (scurfy). 4. Red. July. Mexico. 1825.
 — *sororia* (sister). 2. Purple. July. Nepaul. 1824.

VERBENA (SWEET-SCENTED). *Aloysia*.

VERBESINA. (Altered from *Verbena*. Nat. ord., *Compositæ* [Asteraceæ]. Linn., 19-Syngenesia 2-Superflua.)

Greenhouse, yellow-flowered, herbaceous perennials, from Mexico. Seeds and divisions of the root; rich, sandy loam.

- V. alata* (wing-stalked). 2. August. 1699.
 — *atriplexifolia* (orach-leaved). 3. July. 1823.
 — *pinnatifida* (leaflet-cut). 3. August. 1826.
 — *salsifolia* (willow-leaved). 2. July. 1825.

VERNONIA. (Named after *W. Vernon*, a botanical traveller. Nat. ord., *Compositæ* [Asteraceæ]. Linn., 19-Syngenesia 1-Æqualis.)

All purple-flowered where not otherwise mentioned. Hardy, by seeds and divisions; tender, by seeds, divisions, and cuttings under a hand-light; rich, sandy loam; stove treatment.

STOVE EVERGREENS, &c.

- V. acutifolia* (pointed-leaved). 4. December. S. Amer.
 — *anthelmintica* (worm-killing). Lilac. August. E. Ind. 1770. Biennial.
 — *arborescens* (tree-like). 5. November. Jamaica. 1733.
 — *aspera* (rough). White. June. E. Ind. 1823.
 — *axillæiflora* (axillary-flowered). $\frac{1}{2}$. Lilac. September. Bahia.
 — *centrifolia* (sharp-leaved). September. Brazil. 1826.
 — *eine'rea* (grey). July. E. Ind. Biennial.
 — *flexuosa* (zigzag). $\frac{1}{2}$. September. Brazil. 1823.
 — *fruticosa* (shrubby). 4. October. W. Ind. 1818.
 — *linearis* (narrow-leaved). 1. October. S. Amer. 1825. Annual.
 — *odoratissima* (sweetest-scented). 4. October. Caracas. 1817.
 — *sericea* (silky). 5. December. Brazil. 1825.

HARDY HERBACEOUS.

- V. altissima* (tallest). 12. October. Ohio. 1820.
 — *angustifolia* (narrow-leaved). 4. September. N. Amer. 1817.
 — *glauca* (milky-green). 4. July. N. Amer. 1710.
 — *Noceboracensis* (New York). 6. August. N. Amer. 1710.
 — *oligophylla* (few-leaved). September. N. Amer. 1710.
 — *pandurata* (fiddle-leaved). 4. October. 1825.
 — *præhensilis* (very tall). 8. October. N. Amer. 1732.
 — *scaberrima* (most scurfy). 4. October. N. Amer. 1824.
 — *serratuloides* (sawwort-like). September. Mexico. 1824.
 — *teres* (cylindric-leaved). July. Nepaul. 1821.

VERONICA. Speedwell. (The meaning is doubtful. Nat. ord., *Figworts* [Scrophulariaceæ]. Linn., 2-Diandria-Monogynia.)

All blue-flowered where not otherwise named. Annuals, seeds in March and April; perennials, chiefly by division in spring; good garden-soil; shrubby, cuttings in spring or summer under a bell-glass; peat and loam. Winter temp. for greenhouse kinds, 38° to 45°.

GREENHOUSE HERBACEOUS, &c.

- V. Cretica* (Cretan). $\frac{1}{2}$. May. Crete. 1819.
 — *decussata* (cross-leaved). 1. July. Falkland Isles. 1776. Evergreen.
 — *dianthifolia* (pink-leaved). $\frac{1}{2}$. May. N. Holland. 1823.
 — *distans* (distant). 1. April. N. Holland. 1825.
 — *formosa* (beautiful). 3. White. April. Van Diemen's Land. 1835. Evergreen.
 — *gracilis* (slender). 1. May. N. S. Wales. 1820.
 — *labiata* (lipped). 1. June. N. Holland. 1802.
 — *Lindleyana* (Lindley's). White. Sept. ber. New Zealand. 1843. Evergreen.
 — *nivea* (snowy). White. May. Van Diemen's Land. 1840. Evergreen.
 — *parviflora* (small-flowered). 1. May. New Zealand. 1822. Evergreen.
 — *perfoliata* (leaf-stem-pierced). 1. August. N. S. Wales. 1815.
 — *plebeia* (common). 1. June. N. Holland. 1820.
 — *salsifolia* (willow-leaved). 3. White. July. New Zealand. 1843. Evergreen.
 — *speciosa* (showy). 2. Van Diemen's Land. 1835. Evergreen.

HARDY ANNUALS.

- V. ceratocarpa* (horn-fruited). March. Caucasus. 1835.

V. di'dyma (twin-calyx'd). All seasons. Naples. 1827.
— *pol'ita* (polished). ‡. March. Britain.

HARDY AQUATICS.

V. anagalloi'des (pimpernel-like). Calabria. 1836.
— *carolinia'na* (Carolina). 1. June. Carolina. 1821.
— *parmula'ria* (small-shielded). 1. Red. July. Austria. 1824.
— *scutella'ta* (sauceer-leaved). 3. Flesh. May. Britain.

HARDY HERBACEOUS, &c.

V. abrotanifo'lia (southernwood-leaved). 2. August. Siberia. 1830.
— *acutifo'ra* (acute-flowered). 1. Red. May. France. 1821.
— *Allio'nii* (Allioni's). ‡. May. South Europe. 1740. Evergreen.
— *alp'na* (alpine). ‡. May. Europe.
— *heterophy'lia* (variable-leaved). ‡. May. Europe.
— *integrifo'lia* (entire-leaved). ‡. May. Silesia. 1814.
— *obtusifo'lia* (blunt-leaved). ‡. July. Scotland.
— *pu'mila* (dwarf). ‡. August. Piedmont. 1819.
— *rotundifo'lia* (round-leaved). ‡. May. Europe. 1816.
— *aphy'lia* (leafless). ‡. May. Italy. 1775.
— *argu'ta* (sharp-notched). 3. July. South Europe. 1812.
— *austra'lis* (southern). 1‡. August. South Europe. 1812.
— *Austri'aca* (Austrian). 1. July. Austria. 1748.
— *azu'rea* (sky-blue). 3. May. 1821.
— *Baumga'te'nii* (Don Baumgarten's). May. Transylvania. 1826.
— *bellidioi'des* (daisy-like). ‡. May. Switzerland. 1775.
— *brachyphy'lia* (short-leaved). July. 1822.
— *brevifo'lia* (short-leaved). 1. May. 1822.
— *Cauca'sica* (Caucasian). 1. Pale red. June. Caucasus. 1816.
— *latifo'lia* (broad-leaved). ‡. Pale red. June. Caucasus. 1826.
— *chame'drys* (germander). ‡. June. Britain.
— *lamifo'lia* (lambium-leaved). August. 1825.
— *variegata* (variegated). ‡. August.
— *Clu'sii* (Clusius's). ‡. August. Hungary. 1822.
— *complica'ta* (complicate-leaved). 2. September. Europe. 1812.
— *crassifo'lia* (thick-leaved). 2‡. Violet. May. Europe. 1822.
— *crenula'ta* (notch-flowered). 1‡. August. South Europe. 1814.
— *crini'ta* (hairy). 1. July. Hungary. 1822.
— *cris'pa* (curled-leaved). 2. June.
— *denta'ta* (tooth-leaved). 1. May. Europe. 1818.
— *depu'pera'ta* (impoverished). ‡. June. Hungary. 1823.
— *diosma'fo'lia* (diosma-leaved). Lilac. July. Van Diemen's Land. 1835.
— *ela'tior* (taller). 7. August. South Europe. 1808.
— *e'legans* (elegant). 2. Pink. May. South France. 1822.
— *exal'tata* (lofty). 4. June. Siberia. 1816.
— *filifo'rmis* (thread-leaved). ‡. May. Levant. 1780.
— *folio'sa* (leafy). 3. August. Hungary. 1805.
— *fruticulo'sa* (shrub-like-stalked). ‡. Flesh. July. Scotland. Evergreen.
— *Gentiana'fo'lia* (Gentian-leaved). 1‡. May. Levant. 1748.
— *Gentiano'i'des* (Gentian-like). 2. Violet. June. Levant. 1748.
— *glab'ra* (smooth). 4. August. South Europe. 1804.

V. gla'bra o'liba (white). 4. White. August.
— *gra'ndis* (grand). 1‡. White. August. Siberia. 1826.
— *hy'brida* (hybrid). 1. June. England.
— *inca'na* (hoary). 2. May. Russia. 1759.
— *inci'sa* (cut-leaved). 2. July. Siberia. 1739.
— *Jacqu'i'ni* (Jacquin's). 1. May. Austria. 1748.
— *lacini'a* (jagged-leaved). 2. July. Siberia. 1780.
— *latifo'lia* (broad-leaved). 1. White. blue. May. Austria. 1748.
— *leuca'ntha* (white-flowered). 2. White. July. Siberia. 1817.
— *linaria'fo'lia* (linaria-leaved). August. Siberia. 1822.
— *longibracte'ata* (long-bracted). 1. May. 1817.
— *latifo'lia* (broad-leaved). 1‡. July. 1818.
— *longifo'ra* (long-flowered). 1. Lilac. June. 1824.
— *longifo'lia* (long-leaved). 3. August. South Europe. 1731.
— *abrenia'ta* (shortened). May. 1823.
— *a'liba* (white). 3. White. August.
— *incarna'ta* (flesh-coloured). 3. Flesh. August.
— *latifo'lia* (broad-leaved). June. Crimea. 1821.
— *mar'i'tima* (marine). 2. August. Sweden. 1570.
— *variegata* (variegated-leaved). 1‡. July.
— *me'dia* (mediate). 3. August. Germany. 1804.
— *melanco'tica* (melancholy). 1. June. 1820.
— *melissa'fo'lia* (balm-leaved). 1. May. 1826.
— *mentha'fo'lia* (mint-leaved). 1. August. Austria. 1823.
— *Mey'eri* (Meyer's). July. Dahuria. 1837.
— *Michau'xii* (Michaux's). 1. July. 1834.
— *micra'ntha* (small-flowered). 1‡. White. May. Portugal. 1810.
— *microphy'lia* (small-leaved). ‡. June. Hungary. 1822.
— *Mulleria'na* (Muller's). 1. June. Syria. 1825.
— *multi'fida* (much-cut). ‡. June. Siberia. 1748.
— *negle'cta* (neglected). 1‡. July. Siberia. 1797.
— *ni'tens* (shining). 2. July. Europe. 1817.
— *falcata* (sickle-leaved). June. 1820.
— *ni'tida* (clear). 2. July. Europe. 1817.
— *nummulo'ria* (moneywort-leaved). ‡. June. Pyrenees. 1820.
— *officina'lis* (shop). ‡. June. Britain.
— *orchide'a* (orchis-flowered). 1. August. Europe. 1819.
— *orienta'lis* (eastern). ‡. July. Levant. 1748.
— *pu'llida* (pale). 1. May. Tauria. 1821.
— *panicula'ta* (panicked). 1‡. June. Russia. 1797.
— *pectina'ta* (comb-leaved). 1. May. Italy. 1819.
— *peduncula'ris* (long-flower-stalked). 1. March. Caucasus. 1826.
— *persicifo'lia* (peach-leaved). 2. August. 1823.
— *petra'a* (rock). 1. May. Caucasus. 1821.
— *pilo'sa* (shaggy). 1‡. July. Bohemia. 1819.
— *pinnata* (leafleted). 1. May. Siberia. 1776.
— *pinnati'fida* (leaflet-cut). 1. June. 1817.
— *plica'ta* (plaited). 2. June. Bohemia. 1817.
— *polysta'chya* (many-spiked). 2. July. 1817.
— *Po'nae* (Pona's). ‡. September. Pyrenees. 1822.
— *pra'dita* (very high). 4. August. 1817.
— *pra'cox* (early). ‡. June. South Europe. 1775.
— *prostra'ta* (trailing). 1. May. Germany. 1774.
— *satureia'fo'lia* (savory-leaved). 1. July. South Europe.
— *re'pens* (creeping). White. September. Europe. 1829.
— *Ruthe'nica* (Russian). 2. April. Russia. 1821.
— *saxa'tilis* (rock). ‡. June. Scotland.
— *Schmi'dtii* (Schmidt's). 1. June. Bohemia. 1820.
— *serpy'ijolia* (serpyllium-leaved). ‡. May. Britain.

V. serpyllifolia humifusa (low-spreading). $\frac{1}{2}$.
May. Europe.

— *neglecta* (neglected). $\frac{1}{2}$. May. Britain.

— *quaternata* (four-leaved). $\frac{1}{2}$. May. Europe.

— *tendella* (tender). $\frac{1}{2}$. May. Europe.

— *setigera* (bristled). $\frac{1}{2}$. May. Scotland.

— *Sibirica* (Siberian). 3. July. Dauria. 1779.

— *spicata* (spiked). 1. August. England.

— *spuria* (spurious). 2. August. Siberia. 1731.

— *Stephania* (Stephan's). 1. June. Persia. 1821.

— *stolonifera* (runnered). June.

— *Taurica* (Taurian). $\frac{1}{2}$. June. Siberia. 1820.

— *tendella* (tender). $\frac{1}{2}$. May. France. 1820.

— *tenuifolia* (fine-leaved). $\frac{1}{2}$. June. Pyrenees. 1821.

— *teucrium* (germander-leaved). 2. July. Germany. 1596.

— *Ticine* (Ticin). August. Ticin. 1819.

— *Tournefortii* (Tournefort's). $\frac{1}{2}$. May. France. 1824.

— *trichocarpa* (hairy-capsuled). $\frac{1}{2}$. June. Levant. 1821.

— *villosa* (shaggy). $1\frac{1}{2}$. August. South Europe. 1824.

— *Virginica* (Virginian). 5. White. July. Virginia. 1714.

— *incarnata* (flesh-coloured). 5. Flesh. July. Virginia. 1714.

— *Wormskioidei* (Wormskioide's). $\frac{1}{2}$. June. Greenland. 1819.

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— *Wormskioidei* (Wormskioide's). $\frac{1}{2}$. June. Greenland. 1819.

— *Wormskioidei* (Wormskioide's). $\frac{1}{2}$. June. Greenland. 1819.

Greenhouse deciduous shrub. Cuttings of half-ripened shoots in sand, under a bell-glass; peat and loam. Winter temp., 40° to 48°.

V. lycioides (boxthorn-like). 3. Yellow. June. Chili. 1815.

VETCH. *Vicia*.

VIBORGA. (Named after E. Viborg, a Danish botanist. Nat. ord., Leguminous Plants [Fabaceæ]. Linn., 16-Monadelphia 6-Decandria. Allied to Loddigesia.)

Greenhouse yellow-flowered evergreens, from the Cape of Good Hope. Cuttings of young shoots in sandy soil, under a glass, in May; sandy loam and fibry peat. Winter temp., 40° to 50°.

V. obcordata (reversed-egg-leaved). 2. July.

— *sericea* (silky). 3. July. 1810.

VIBURNUM. (From *vicio*, to tie; use of flexible shoots. Nat. ord., Caprifoliaceæ [Caprifoliaceæ]. Linn., 5-Pentandria 3-Trigynia.)

White-flowered, unless otherwise mentioned. Seeds, which should lie a season in the rot-heap before sowing; by layers; and freely, especially the evergreens, by cuttings in autumn, in sandy soil, in a shady border, where they may remain two years. The tender kinds like a little peat or leaf-mould, and greenhouse or stove treatment.

GREENHOUSE EVERGREENS.

V. monogynum (one-styled). Java.

— *rugosum* (rough). 4. May. Canaries. 1796.

— *tinoides* (tinus-like). 4. S. Amer. 1820. Stove.

— *tomentosa* (downy). 6. Japan.

— *villosum* (shaggy). 6. Jamaica. 1824.

HARDY EVERGREENS.

V. Awafuki (Awafuki). Japan. 1841.

— *cassinoides* (cassine-like). 3. June. N. Amer. 1761.

— *laevigatum* (smoothed). 10. May. N. Amer. 1724.

— *Mulla* (Mullaha). Himalayas.

— *pygmaea* (pigmy). 14. Himalayas. 1811.

— *Sinense* (Chinese). China. 1841.

— *tinus* (laurestine). 5. July. South Europe. 1595.

— *hirtum* (hairy). 5. July. South Europe.

— *lucidum* (shining). 10. August. Algiers.

— *lucidum variegatum* (variegated). 10. August.

— *strictum* (erect). 6. August. South Europe.

— *strictum variegatum* (variegated). 6. August. South Europe.

— *virgatum* (twiggy). 6. August. Italy.

HARDY DECIDUOUS.

V. acerifolium (maple-leaved). 4. June. N. Amer. 1736.

— *cotinifolium* (cotinus-leaved). 10. June. Himalaya. 1830.

— *Dahuricum* (Dahurian). 2. June. Dahuria. 1785.

— *dentalium* (tooth-leaved). 5. June. N. Amer. 1763.

— *dilatatum* (swollen). 4. April. China. 1846.

— *edule* (eatable-fruited). 12. May. N. Amer. 1812.

— *lanta* (wayfaring-tree). 10. May. Britain.

— *foliis-variegatis* (variegated-leaved). 10. May.

— *grandifolium* (large-leaved). 10. June.

— *lantana* (lantana-like). 8. June. N. Amer.

— *lentago* (lentago). 8. July. Spain. 1761.

— *macrocephalum* (large-headed). 20. China. 1844.

VERTICILLARIA. (Derivation not given. Nat. ord., Fringe-myrtles [Chamaelauriaceæ]. Linn., 10-Decandria 1-Monogynia.)

Greenhouse evergreens, from Swan River. Cuttings of young shoots in sand, under a bell-glass, in April or May; fibry loam and sandy peat. Winter temp., 38° to 45°.

V. acerosa (chaffy-leaved). Yellow. April. 1842.

— *Brownii* (Brown's). 1. White. April. 1826.

— *densiflora* (dense-flowered). White. June.

— *Fontainei* (Desfontaine's). 1. White. April. 1826.

— *helianthus* (sunflower). Yellow. May.

— *insignis* (showy). Pink. April. 1839.

— *pennigera* (feathery). Lilac. April. 1841.

— *setigera* (bristly). Lilac. May.

— *setigera* (bristly). Lilac. May.

— *setigera* (bristly). Lilac. May.

— *setigera* (bristly). Lilac. May.

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— *setigera* (bristly). Lilac. May.

- V. molle* (soft). 6. May. N. Amer. 1812.
 — *nitidum* (shining). 2. June. N. Amer. 1758.
 — *nudum* (naked). 8. June. N. Amer. 1752.
 — — *aguama'tum* (scaly). 6. July. N. Amer. 1822.
 — *obovatum* (reversed-egg-leaved). 2. April. N. Amer. 1812.
 — — *punicifolium* (punica-leaved). 2. May. N. Amer. 1812.
 — *odoratissimum* (sweetest-scented). 2. May. China. 1818.
 — *o'pulus* (guelder-rose). 10. July. Britain.
 — — *fo'lis - variega'tis* (variegated-leaved). June.
 — — *na'num* (dwarf). 3.
 — — *ste'rite* (barren). July.
 — *orienta'le* (eastern). 10. May. Caucasus. 1827.
 — *oxyco'ccus* (cranberry-like). 12. June. N. Amer.
 — *mo'lis* (soft). 10. July. N. Amer. 1841.
 — — *subintegrifolium* (nearly-entire-leaved). 10. July. Columbia.
 — *plica'tum* (plaited-leaved). 10. May. China. 1846.
 — *prunifolium* (plum-leaved). 8. May. N. Amer. 1731.
 — *pubescens* (downy). 3. June. N. Amer. 1736.
 — *pyrifolium* (pear-leaved). 6. June. N. Amer. 1812.

VICIA. Vetch. (From *vincio*, to bind; referring to the tendrils clasping. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 17-*Diadelphia* 4-*Decandria*.)

Purple-flowered climbers, unless otherwise mentioned. Annuals, seeds; perennials, seeds and divisions; good garden-soil.

HARDY ANNUALS.

- V. atro-purpurea* (dark purple). 3. June. Algiers. 1815.
 — *bie'nnis* (biennial). 2. August. Siberia. 1753.
 — *calceara'ta* (spurred). 2. Red, blue. July. Barbary. 1790.
 — *glabra* (smooth). 2. July. Switzerland. 1819.
 — *grandiflora* (large-flowered). 1. Yellow. July. South Europe. 1818.
 — *hirsuta* (hairy). 1½. Yellow. July. Siberia. 1819.
 — *hybrida* (hybrid). 1½. Yellow. July. England.
 — *longifolia* (long-leaved). 2. Cream. July. Syria. 1818.
 — *Nusquinez* (Nusquinez). 1½. July. Europe. 1818.
 — *Narbonensis* (Narbonne). 3. July. France. 1590.
 — *Nissolia'na* (Nissole's). 3. July. Levant. 1773.
 — *Pannonica* (Pannonian). 1½. White. June. Hungary. 1636.
 — *peregrina* (rambling). 1½. July. South Europe. 1779.
 — *pseudocracca* (bastard-cracca). 2. Yellow. June. South Europe. 1820.
 — *punctata* (dotted). July. Switzerland. 1819.
 — *sativa* (cultivated. *Tare*). 3. May. Britain.
 — *stratifolia* (saw-leaved). 3. June. Hungary. 1723.
 — *striata* (channelled). 1½. July. Tauria. 1723.
 — *Syriaca* (Syrian). 2. June. Syria. 1816.
 — *Thouini* (Thouin's). 2. June. Europe. 1800.
 — *trichocalyx* (hairy-calyxed). White. June. Sardinia. 1836.
 — *triflora* (three-flowered). 2. July. Italy. 1820.
 — *villosa* (shaggy). 3. June. Germany. 1815.

HARDY HERBACEOUS.

- V. abbreviata* (short-flower-stalked). 2. Pale blue. June. Caucasus. 1818.
 — *altissima* (tallest). 3. Pale blue. August. Barbary. 1820.

- V. America'na* (American. Wood). 3. White. June. N. Amer. 1800.
 — *ame'na* (pleasing). 2. June. Siberia. 1818.
 — *Bythynica* (Bithynian). July. Britain.
 — *Bivoni'si* (Bivoni's). Rose. July. Sicily. 1828.
 — *Cape'nsis* (Cape). 1. July. Cape of Good Hope. 1802.
 — *Caroliniana* (Carolina. *Tufted*). 2. White. June. Carolina. 1820.
 — *Cassubica* (Cassubian). 3. Light blue. July. Germany. 1711.
 — *cracca* (cracca. *Tufted*). 2. July. Britain.
 — — *floribus-a'lbus* (white-flowered). 2. White. July.
 — — *floribus-ru'bris* (red-flowered). 2. Red. July.
 — *denta'ta* (toothed). 4. July. Siberia. 1819.
 — *dumetorum* (hedge). 3. July. France. 1752.
 — *Gera'di* (Gerard's). 2. July. South Europe. 1810.
 — *lavigatu* (smooth-podded). 1½. Pale yellow. May. England.
 — *onobrychioides* (saintfoin-like). 1. June. South Europe. 1759.
 — *pellucida* (transparent). 1. July. Cape of Good Hope. 1773. Greenhouse.
 — *perennis* (everlasting). 3. June. South Europe.
 — *pisiformis* (pea-shaped). 2. Cream. July. Austria. 1739.
 — *polyphylla* (many-leaved). 2. July. Algiers. 1816.
 — *Pyrenaica* (Pyrenean). 1. May. Pyrenees. 1818.
 — *temuifolia* (slender-leaved). 1½. July. Germany. 1799.
 — *variegata* (variegated). 3. June. Caucasus. 1816.

VICTORIA. (Named after Her Majesty Queen Victoria. Nat. ord., *Water-lilies* [Nymphaeaceæ]. Linn., 13-*Polyandria* 1-*Monogynia*. Alliance between Euryale and Nymphaea.)

Stove herbaceous aquatic. Generally by seeds, sown in strong peat, and planted out in a reservoir of heated water as soon as germinated. From the size of the leaves, the tank must be twenty-five feet in diameter; and if the water is moved, or is being constantly furnished with a fresh supply, the plants will thrive all the better. At Messrs. Weeks', in the King's Road, it has been bloomed successfully in the open air in a tank, the water of which was heated to 80° by hot-water pipes.

V. regia (royal). Rosy-white. Autumn. River Amazon. 1836.

VIEUSSEUXIA. (Named after M. Vieusseux, a Swiss botanist. Nat. ord., *Irids* [Iridaceæ]. Linn., 3-*Triandria* 1-*Monogynia*. Allied to *Ixia*.)

Bulbs, from the Cape of Good Hope, requiring the same treatment as *IXIAS*.

V. Bellenden'si (Bellenden's). 1. Yellow. June. 1803.

— *fu'gar* (transient). 1. Purple. June. 1825.
 — *glauco'pis* (grey-eyed). 1. Red, brown. June. 1776.

— *lu'rida* (lurid). 1. Crimson. June. 1817.

— *pavoni'na* (peacock). 1. Red, blue. May. 1790.

— *spira'lis* (spiral). 1. White. May. 1824.

— *ten'uis* (slender). 1. Purple. May. 1807.

— *tricu'spis* (three-pointed). 1. Green. May. 1776.

— *tripetaloides* (three-petaled-like). 1. Violet. June. 1802.

V. unguiculata (soft-clawed). 1. Variegated. June. 1802.

— *villosa* (shaggy). 1. Purple. July. 1789.

VIGNA. (Named after *D. Vigni*, a commentator on Theophrastus. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 17-*Diadelphia* 4-*Decandria*. Allied to *Dolichos*.)

Hardy, yellow-flowered, climbing annuals. Seeds in a slight hotbed in March, and afterwards planted out in the beginning of May, or sown in the end of April in sandy, light soil.

V. glabra (smooth). 4. July. N. Amer. 1683.

— *villosa* (shaggy). July. Chili. 1826.

VIGUIERIA. (Named after *L. G. A. Viguier*, a French botanist. Nat. ord., *Compositæ* [Asteraceæ]. Linn., 19-*Syn-genesia* 3-*Frustranea*. Allied to the Sun-flower.)

Stove, yellow-flowered, herbaceous perennials. Divisions in spring, and cuttings of young shoots as fresh growth commences, in sandy soil, in a hotbed, in March; sandy peat and fibry loam. Winter temp., 50° to 55°; summer, 60° to 75°.

V. dentata (toothed). 3. July. Mexico. 1826.

— *helianthoides* (sunflower-like). 3. July. Cuba. 1825.

— *prostrata* (lying-flat). July. N. Amer. 1800.

VILLARSIA. (Named after *Villars*, a French botanist. Nat. ord., *Gentianworts* [Gentianaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*.)

Yellow-flowered, where not otherwise stated. Divisions and seeds in spring. Most of them must be treated as aquatics, either planted in pans or tubs, or potted and set in large saucers, and coaxed with stove or greenhouse treatment. The hardest like the protection of the latter, though they may stand frequently in the open air.

HERBACEOUS PERENNIALS.

V. geminata (twin-flower-stalked). June. N. Holland. 1828.

— *sarmentosa* (twiggly). 1. June. N. Holland. 1806.

— *Simsii* (Sims'). July. Nepaul. 1792.

HERBACEOUS AQUATICS.

V. Chilensis (Chilian). 1. June. Chili. 1832.

— *Indica* (Indian). White. July. Cape of Good Hope. 1792.

— *lacunosa* (pitted). 2. White. June. N. Amer. 1812.

— *nymphoides* (water-lily-like). 2. June. England.

— *ovata* (egg-leaved). June. Cape of Good Hope. 1786.

— *Parnassifolia* (Parnassia-leaved). 2. August. N. S. Wales. 1825.

— *reniformis* (kidney-leaved). 1. July. N. Holland. 1820.

VILMORINIA. (Named after *M. Vil-morin*, a celebrated French nurseryman. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 17-*Diadelphia* 4-*Decandria*.)

Stove evergreen. Seeds, soaked in warm water, and sown in a hotbed in spring; also cuttings of half-ripened shoots in sand, under a bell-glass, in

April, and in bottom-heat; sandy peat and fibry loam. Winter temp., 55° to 60°; summer, 60° to 85°.

V. multiflora (many-flowered). 6. Purple. W. Ind. 1826.

VIMINARIA. Rush Broom. (From *vimen*, a twig; the twiggly, leafless branches. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 10-*Decandria* 1-*Monogynia*. Allied to *Daviesia*.)

Greenhouse, yellow-flowered evergreens, from New Holland. Cuttings of half-ripened shoots in sand, under a bell-glass, in April; also by seeds in a gentle hotbed; loam and peat. Winter temp., 40° to 45°.

V. denudata (stripped). 3. August. 1780.

— *lateriflora* (side-flowering). 3. July. 1824.

VINCA. Periwinkle. (From *vinculum*, a band; the tough, long shoots. Nat. ord., *Dogbanes* [Apocynaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*.)

Evergreens. Division of the plant in spring, or cuttings of the shoots in a shady border, in spring or autumn; these make beautiful green carpeting under trees, where scarcely anything else would grow, and flourish in almost any soil. Some require the stove.

V. herbacea (herbaceous). 1½. Purple. June. Hungary. 1816.

— *major* (greater). 2. Purple. August. England.

— *variegata* (variegated). 2. Blue. July. England.

— *minor* (lesser). 1. Blue. August. Britain.

— *pursillia* (small-flowered). ½. Blue. August.

— *Tranquebar*. 1778. Stove annual.

— *rosea* (rosy). 1. Rose-coloured. May. E. Ind. 1776. Stove.

— *alba* (white). 1. White. June. E. Ind. Stove.

— *ocellata* (red-eyed). 1. White, red. June. E. Ind. Stove.

VINE. (*Vitis vinifera*). See GRAPEVINE.

VINE BOWER. *Clematis viticella*.

VINE LEEK. *Allium ampeloprasum*.

VIOLET. The Violet. (The Latin name. Nat. ord., *Violetworts* [Violaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*.)

Blue-flowered, where not otherwise mentioned. By seeds, divisions, and cuttings under a bell-glass or hand-light; mostly in rich, light soil, with a portion of peat.

GREENHOUSE PERENNIALS.

V. arborescens (tree-like). 1½. May. Spain. 1779.

— *betonicaefolia* (betony-leaved). ½. August. N. Holland. 1820.

— *caespitosa* (tufted). ½. Violet. March. Nepaul. 1825.

— *decumbens* (lying-down). ½. June. Cape of Good Hope. 1819.

— *hederacea* (ivy-leaved). ½. July. N. Holland. 1823.

— *humilis* (lowly). ½. White. May. Mexico. 1824.

— *Palmettis* (Palma). 1. Purple. May. South Europe. 1836.

— *pygmaea* (pigmy). ½. August. Peru. 1822.

— *reniformis* (kidney-leaved). ½. July. N. Holland. 1823.

HARDY PERENNIALS.

- V. affinis* (related). April. N. Amer. 1802.
— Alleghaniensis (Alleghany). $\frac{1}{2}$. May. N. Amer. 1824.
— alpi'na (alpine). $\frac{1}{2}$. Purple. June. Austria. 1823.
— Altaica (Altaic). $\frac{1}{2}$. Dark purple. May. Siberia. 1803.
— purpurea (purple). $\frac{1}{2}$. Purple. May. Siberia. 1810.
— ambigua (doubtful). $\frac{1}{2}$. May. Hungary. 1823.
— amœna (pleasing). $\frac{1}{2}$. Purple. June. Scotland.
— arena'ria (sand). June. France. 1823.
— asarifolia (asarum-leaved). $\frac{1}{2}$. May. N. Amer. 1820.
— aspera (rough). $\frac{1}{2}$. Pale yellow. May. Nepal. 1824.
— attenuata (attenuated). $\frac{1}{2}$. White. July. N. Amer. 1759.
— Bannatica (Hungarian). $\frac{1}{2}$. Yellow, purple. August. Germany. 1820. Annual.
— bicolor (two-coloured). $\frac{1}{2}$. White. May. N. Amer. 1818. Annual.
— biflora (two-flowered). $\frac{1}{2}$. Yellow. June. Alps, Europe. 1752.
— blanda (charming). $\frac{1}{2}$. White. May. N. Amer. 1803.
— calcarata (spurred). $\frac{1}{2}$. May. Switzerland. 1752.
— campestris (field). $\frac{1}{2}$. Purple. April. Tauria. 1824.
— Canadensis (Canadian). $\frac{1}{2}$. White. May. N. Amer. 1783.
— discolor (two-coloured). $\frac{1}{2}$. Blue, white. June. N. Amer. 1783.
— canina (dog's). $\frac{1}{2}$. May. Britain.
— Cenisia (Mount Cenis). $\frac{1}{2}$. June. Mount Cenis. 1759.
— clandestina (clandestine). $\frac{1}{2}$. Brown. April. Pennsylvania. 1800.
— collina (hill). $\frac{1}{2}$. May. Poland. 1822.
— concolor (self-coloured). 1. Green. June. N. Amer. 1788.
— cornuta (horned). $\frac{1}{2}$. May. Pyrenees. 1776.
— cucullata (hooded). $\frac{1}{2}$. May. N. Amer. 1762.
— dactyloides (dactylis-like). $\frac{1}{2}$. May. Siberia. 1820.
— debilis (weak). $\frac{1}{2}$. April. N. Amer. 1820.
— declinata (turned-aside). $\frac{1}{2}$. June. Pannonia. 1818.
— digitata (finger-leaved). $\frac{1}{2}$. June. Virginia.
— dissecta (jagged-leaved). Violet. Altaia.
— emarginata (notch-ended). May. N. Amer.
— epipsila (naked-above). $\frac{1}{2}$. Yellow. Livonia. 1822.
— eriocarpa (woolly-fruited). $\frac{1}{2}$. Yellow. June. N. Amer. 1823.
— flabellifolia (fan-leaved). $\frac{1}{2}$. June. N. Amer. 1823.
— flavicornis (yellow-horned). $\frac{1}{2}$. Yellow, blue. June. Britain.
— glauca (milky-green). $\frac{1}{2}$. May. Poland. 1822.
— Gmeliniana (Gmelin's). $\frac{1}{2}$. May. Siberia. 1820.
— gracilis (slender). $\frac{1}{2}$. Purple. June. Greece. 1817.
— grandiflora (large-flowered). $\frac{1}{2}$. Yellow. July. Switzerland.
— hastata (halbert-leaved). $\frac{1}{2}$. Yellow. May. Carolina. 1823.
— hirsuta (hairy). $\frac{1}{2}$. May. Bohemia. 1820.
— hirta (hairy). $\frac{1}{2}$. Greyish. May. England.
— Japónica (Japan). $\frac{1}{2}$. May. Japan. 1818.
— Kitabeliana (Kitabel's). Yellow. April. Switzerland. 1824. Annual.
— Krokeri (Kroker's). $\frac{1}{2}$. Pale red. May. Siberia. 1820.
— lactea (milky). $\frac{1}{2}$. Crimson. May. England.
— lanceolata (spear-leaved). $\frac{1}{2}$. White. June. N. Amer. 1759.

- V. Langsdorffii* (Langsdorf's). $\frac{1}{2}$. June. Siberia. 1823.
— litorea (shore). June. Baltic.
— lutea (yellow). $\frac{1}{2}$. Yellow. June. Britain.
— mirabilis (wonderful). $\frac{1}{2}$. July. Germany. 1732.
— montana (mountain). 1. May. Alps. 1693.
— stricta (erect). Cream. May. England. 1819.
— neglecta (neglected). $\frac{1}{2}$. May. Crimea. 1817.
— nummularifolia (moneywort-leaved). $\frac{1}{2}$. May. South France. 1820.
— Nuttallii (Nuttall's). $\frac{1}{2}$. Yellow. May. Missouri. 1812.
— obliqua (twisted-flowered). $\frac{1}{2}$. Yellow, blue. May. N. Amer. 1762.
— ochroleuca (yellowish-white). $\frac{1}{2}$. Cream. May. N. Amer. 1800.
— occulta (hidden). $\frac{1}{2}$. Veiny. June. 1832. Annual.
— odorata (sweet-scented. Common). $\frac{1}{2}$. Purple. June. Britain.
— alba (white-flowered). $\frac{1}{2}$. White. April. Britain.
— oreades (oreades). $\frac{1}{2}$. Purple. June. Tauria. 1818.
— ovata (egg-leaved). $\frac{1}{2}$. May. N. Amer. 1783.
— palmaris (palm). $\frac{1}{2}$. Yellow. June. Nepal. 1824.
— palmata (hand-leaved). $\frac{1}{2}$. May. N. Amer. 1752.
— variegata (variegated). $\frac{1}{2}$. Purple, white. June. N. Amer.
— palustris (marsh). $\frac{1}{2}$. May. Britain.
— Pennsylvanica (Pennsylvanian). $\frac{1}{2}$. June. N. Amer.
— papilionacea (butterfly). $\frac{1}{2}$. May. N. Amer. 1800.
— Patrini (Patrin's). June. Siberia. 1822.
— pedata (doubly-lobed). $\frac{1}{2}$. May. N. Amer. 1759.
— flabellata (fan-leaved). $\frac{1}{2}$. May. Georgia.
— ranunculifolia (ranunculus-leaved). $\frac{1}{2}$. Whitish. June. N. Amer. 1818.
— pedatifida (lobe-cleft). $\frac{1}{2}$. June. N. Amer. 1826.
— Pennsylvanica (Pennsylvanian). Yellow. June. 1772.
— persicifolia (peach-leaved). 1. Cream. June. Germany. 1817.
— pinna'ta (leafleted). $\frac{1}{2}$. Violet. June. South Europe. 1752.
— premo'rsa (bitten-rooted). $\frac{1}{2}$. Yellow. May. Columbia. 1828.
— primulaefolia (primrose-leaved). $\frac{1}{2}$. June. Carolina. 1783.
— prostrata (prostrate). $\frac{1}{2}$. Cream. June. Tenerife. 1824.
— pubescens (downy). $\frac{1}{2}$. Yellow. June. N. Amer. 1772.
— pumila (dwarf). $\frac{1}{2}$. May. France. 1818.
— ericetorum (heath). May. Germany. 1826.
— lanceifolia (spear-leaved). May. Germany.
— Pyrenaica (Pyrenean). $\frac{1}{2}$. May. Pyrenees. 1817.
— radicans (rooting). $\frac{1}{2}$. June. Carolina. 1823.
— Rothomagensis (Rouen). $\frac{1}{2}$. July. France. 1781.
— rotundifolia (round-leaved). $\frac{1}{2}$. Pale yellow. May. N. Amer. 1800.
— Ruppil (Ruppil's). $\frac{1}{2}$. May. Italy. 1822.
— sagittata (arrow-leaved). $\frac{1}{2}$. White, blue. July. N. Amer. 1775.
— sarmentosum (twiggy). $\frac{1}{2}$. June. Caucasus. 1824.
— Schmidtiana (Schmidt's). $\frac{1}{2}$. May. Austria. 1821.
— Selkirkii (Selkirk's). $\frac{1}{2}$. June. N. Amer. 1822.
— striata (streaked). $\frac{1}{2}$. Striped. June. N. Amer. 1772.
— suavis (sweet). $\frac{1}{2}$. June. Ukraine. 1823.
— Sudetica (Sudetic). $\frac{1}{2}$. Yellow. Germany. 1805.
— sylvestris (wood). $\frac{1}{2}$. May. Hungary. 1826.
— tricolor (three-coloured. Pansy). $\frac{1}{2}$. Yellow, purple. August. Britain.
— arvensis (corn-field). $\frac{1}{2}$. Yellow, purple. June. Britain.
— elegans (elegant). $\frac{1}{2}$. Veiny. Summer. Altaia. 1832.

- V. tri-color hirta* (hairy). June. Pannonia. 1820.
 — *tripartita* (three-parted). †. Yellow. June.
 N. Amer. 1823.
 — *uliginosa* (swamp). †. Purple. April. Carinthia. 1823.
 — *uniflora* (one-flowered). †. Yellow. June. Siberia. 1774.
 — *Valdæria* (Valderian). †. Purple. May. Mount Ceniz. 1759.
 — *variegata* (variegated). †. Pale violet. May. Dahuria. 1817.
 — *Villarsiana* (Villars's). †. June. Vallesia.
 — *Zoysii* (Zoy's). †. Yellow. August. Carinthia.

VIOLET FORCING.—To obtain *Neapolitan Violets* in winter, select a warm, sheltered corner; cast out trenches a foot deep and five feet wide into the alleys, and make a turf wall all round to the desired height, for holding about fifteen or eighteen inches of leaves, rubbish-heap refuse, or any fermenting materials likely to afford a little bottom-heat, upon which place about eight or nine inches of rich, open soil. The width regulate by any lights to be spared for a time, or thatched hurdles, or other protectors. The plants take up from the store plantation carefully, with balls of earth to their roots, and plant from ten to twelve inches apart each way, first clearing them of any side-shoots or suckers; afterwards keep clear of dead leaves, &c., well surface-stir, and never allow to get dry. No lights or protection are to be placed over them until frosty nights set in, or very heavy rains; then, at all times, tilt on both sides, with abundance of air, if the weather is not too severe. By such treatment the foliage is always large, thick, and of a beautiful dark green, the flowers abundant and large. No side-runners are to be allowed to run until April, at which time they are to be encouraged to grow; and open, sandy, rich soil sifted amongst them, and kept well watered, to encourage them to root freely. A partially-shaded piece of good ground is then to be chosen in the month of May, and the Violets then forked up, old and young altogether, and the best of the young plants selected and planted out a foot apart each way singly. They are to be kept well surface-stirred all the summer, and by October they will be fine plants to take up as above described.

Russian Violets—Single White, Double White, Double Blue, and other hardy varieties—grow in a similar way, with regard to planting out the young runners and summer treatment, and they are also to be carefully taken up in October; some placed in turf-pits, with gentle bottom-

heat, and some without bottom-heat, and a quantity planted on sloping banks. By this simple contrivance abundance of luxuriant flowers are kept in succession from September till May. Every variety is kept clear from side-shoots or runners all the summer. All the varieties are particularly fond of charred articles mixed with the soil.

VIPER'S BUGLOSS. *E'chium*.

VIPER'S GRASS. *Scorzonera*.

VIRGILIA. (Named after *Virgil*, the Roman poet. Nat. ord., *Leguminous Plants* [Fabacæ]. Linn., 10-*Decandria* 1-*Monogynia*. Allied to *Sophora*.)

Greenhouse, yellow-flowered evergreens, from the Cape of Good Hope, where not otherwise specified. Cuttings of half-ripened shoots in sand, under a glass, in April; sandy loam and fibry peat. *Lu'tea* is generally propagated by layers in spring and autumn.

V. aurea (golden). 6. July. Abyssinia. 1777.

— *Cape'nsis* (Cape). 2. Purple, white. July. 1767.

— *intrusa* (intruded). 8. July. 1790.

— *lu'tea* (yellow). 15. July. N. Amer. 1812.

Hardy deciduous.

— *Robinioides* (Robinia-like). 8. August. 1818.

— *syriaca* (wood). 4. August. 1816.

VIRGINIAN CREEPER. *Ampelo'psis hederacea*.

VIRGINIAN POKE. *Phytola'cca deca'ndra*.

VIRGIN'S BOWER. *Cle'matis vitice'lla*.

VISCA'RIA. Rock *Lychnis*. (From *viscus*, bird-lime; the glutinous stems. Nat. ord., *Cloves* [Caryophyllacæ]. Linn., 10-*Decandria* 5-*Decagynia*. Allied to *Catchfly*.)

Seeds in open border, in April; or in a sheltered, dry place, in September; perennials, by seeds and divisions; dry garden-soil. *Lychnis alpina* and *Helle'tica* have been added to this genus.

HARDY PERENNIALS.

V. neglecta (neglected). †. White. May. 1807.

— *Sue'dica* (Swedish). †. Pink. June. Sweden. 1824.

HARDY ANNUALS.

V. cæli-ro'sa (rose-of-heaven). 1. Rose. June: Mexico. 1843.

— *gracilis* (slender). Yellow. June. Texas. 1834.

— *grandiflora* (large-flowered). Yellow. July. Texas. 1835.

— *ocula'ta* (dark-eyed). 2. Pink. July. Algiers. 1843.

VI'SCUM. Mistletoe. (From *viscus*, bird-lime; the berries contain a viscid matter like bird-lime. Nat. ord., *Loranth* [Loranthacæ]. Linn., 22-*Diæcia* 4-*Pentandria*.)

The Mistletoe thrives best on the thorn and the apple. The seed, in early spring, should be squeezed from the berries into crannies of the bark underneath a branch, or slits be made on purpose in the bark.

V. album (white). 2. Green. May. England.

VI'SMIA. (Named after *M. Visme*, a

Lisbon merchant. Nat. ord., *Tutsans* [Hypericaceæ]. Linn., 18-Polyadelphia 2-Polyandria.)

Stove, yellow-flowered evergreens. Cuttings of firmish side-shoots in sand, in May, under a bell-glass, and placed in bottom-heat; sandy peat, fibry loam, and a little rough charcoal. Winter temp., 56° to 55°; summer, 60° to 85°.

V. Brazilica (Brazilian. *Was-tree*). 8. August. Brazil. 1824.

— *glabra* (smooth). 10. Red. July. S. Amer. 1824.

— *Guianensis* (Guianan. *Was-tree*). 8. August. Guiana. 1824.

— *sessilifolia* (stalkless-leaved). May. Guiana. 1826.

VITEX. Chaste-tree. (From *vicio*, to bind; the flexible branches. Nat. ord., *Verbenas* [Verbenaceæ]. Linn., 14-*Didynamia* 2-*Angiospermia*.)

Purple-flowered, except where otherwise stated. The hardy by cuttings under a hand-glass, in a shady border, in autumn, or in a sheltered place without the hand-glass. The others require greenhouse and stove treatment, and are easily propagated by cuttings under a bell-glass; the stove species in a little bottom-heat; sandy loam and a little peat.

HARDY DECIDUOUS.

V. agnus-castus (chaste-lamb-tree). 6. White, blue. Sicily. 1570.

— *latifolia* (broad-leaved). 6. White, blue. September. Sicily. 1570.

STOVE EVERGREENS.

V. alata (winged). 10. September. E. Ind. 1820.

— *altissima* (tallest). 8. Ceylon. 1810.

— *arborescens* (tree). 30.

— *bicolor* (two-coloured). 4. E. Ind. 1810.

— *Bignonioides* (Bignonia-like). Blue. Caraccas. 1826.

— *capitata* (headed). Blue. June. Trinidad. 1822.

— *Doniana* (Don's). Sierra Leone. 1824.

— *gigantea* (gigantic). Guayaquil. 1826.

— *heterophylla* (various-leaved). Blue. E. Ind. 1820.

— *incisa* (cut-leaved). 4. August. China. 1758. Greenhouse.

— *latifolia* (broad-leaved). Blue. July. E. Ind. 1820.

— *leucoxylon* (white-wooded). 4. Ceylon. 1793.

— *Negundo* (Negundo). 4. E. Ind. 1812.

— *ovata* (egg-leaved). 4. July. China. 1796.

— *saligna* (willow-leaved). Blue. July. E. Ind. 1823.

— *triflora* (three-flowered). 6. Cayenne. 1819.

— *trifolia* (three-leaved). 4. E. Ind. 1759.

— *umbrosa* (shady). 30. Jamaica. 1823.

VITIS. The Vine. (From the Celtic *gwyd*, pronounced *vid*, best of trees. Nat. ord., *Vineworts* [Vitaceæ]. Linn., 5-Pentandria 1-Monogynia.)

Hardy deciduous, all but one green-flowered. Few are worth growing except *vinifera* and its varieties; the other species are viewed chiefly in this country as botanical curiosities. All are propagated by cuttings and buds of the ripe wood, layers, and by grafting and inarching. Soil for all a rich, open loam. See GRAPE VINE.

V. blanda (mild). May. N. Amer.

— *heterophylla* (various-leaved). 10. Blue. Japan. 1820.

V. parvifolia (small-leaved). Himalaya. 1841.

— *riparia* (river-bank). 20. May. N. Amer. 1826.

— *vinifera* (wine-bearing). 30. June.

— *apifolia* (parsley-leaved). 20. June. 1648.

— *Wallichii* (Wallich's). Nepal. 1818.

VITTARIA. (From *vitta*, a riband; shape of fronds. Nat. ord., *Ferns* [Polypodiaceæ]. Linn., 24-Cryptogamia 1-Filices.)

Stove, brown-spored Ferns. See FERNS.

V. angustifolia (narrow-leaved). Malacca.

— *elongata* (elongated). S. Amer.

— *ensiformis* (sword-shaped). May. Brazil.

— *graminifolia* (grass-leaved). 1. July. Brazil. 1820.

— *lineata* (lined). 2. August. S. Amer. 1795.

— *zosterifolia* (zostera-leaved). S. Amer.

VIVIANA. (Named after Dr. Viviani, a Swiss botanist. Nat. ord., *Vivianiads* [Vivianiaceæ]. Linn., 10-Decandria 3-Trigynia.)

Greenhouse, Chilean evergreens. Cuttings of young shoots in sand, under a bell-glass, in May; sandy loam and fibry peat. Winter temp., 45° to 50°; summer, 60° to 70°.

V. grandiflora (large-flowered). 2. Red. July. 1832.

— *marifolia* (marum-leaved). 2. Red. July. 1832.

— *parviflora* (small-flowered). 2. White. July. 1832.

VOLKAME'RIA. The following are to be added to Clethra:—

C. aculeata (prickly). 4. White. September.

W. Ind. 1739. Stove evergreen.

— *Japonica* (Japan). 50. Purple. Japan. 1820. Greenhouse evergreen.

VO'YRA. (Guianan name. Nat. ord., *Gentianworts* [Gentianaceæ]. Linn., 5-Pentandria 1-Monogynia.)

Stove herbaceous perennials. Seeds and divisions in spring; sandy loam, with decayed vegetable mould, or a little peat. Winter temp., 50° to 55°; summer, 60° to 80°.

V. cœrulea (blue). Blue. June. Trinidad. 1824.

— *rosea* (rosy). Red. July. Guiana. 1823.

— *uniflora* (one-flowered). Yellow. June. W. Ind. 1824.

VRIE'SIA. (Named after Dr. de Vriese, a Dutch botanist. Nat. ord., *Bromelworts* [Bromeliaceæ]. Linn., 6-Hexandria 1-Monogynia. Allied to Pitcairnia.)

Stove evergreens. For culture, see PITCAIRNIA.

V. glaucophylla (milky-green-leaved). 1½. Purple, white. September. Santa Martha. 1847.

— *psittacina* (parrot-like-flowered). 2. Scarlet. July. Rio Janeiro. 1826.

— *speciosa* (showy). 1½. White. March. 1847.

W.

WACHENDO'RFIA. (Named after E. J. Wachendorf, a Dutch botanist. Nat. ord., *Lilyworts* [Liliaceæ]. Linn., 3-Triandria 1-Monogynia.)

Greenhouse, Cape of Good Hope bulbs; yellow-flowered, except where otherwise mentioned, and

requiring the same treatment as the larger *Ixias*. They bloom in April.

- W. brevifolia* (short-leaved). 1. Purple. 1795.
- *Breynia*'na (Breynia's). 1. 1825.
- *graminea* (grass-leaved). 1.
- *Hibbertii* (Hibbert's). 2. 1823.
- *hirsuta* (hairy). 12. Violet. 1687.
- *paniculata* (panicked). 2. 1700.
- *tenuella* (tender). 1. 1816.
- *thyrsiflora* (thyrses-flowered). 2. May. 1759.

WAHLENBERGIA. (Named after Dr. Wahlenberg, author of "Flora Lapponica." Nat. ord., *Bellworts* [*Campanulaceæ*]. Linn., 5-Pentandria 1-Monogynia.)

All are blue-flowered, except when otherwise mentioned. Seeds under a glass in the beginning of April, and planted out in the end of May; division of perennials, and cuttings of the young shoots in the beginning of summer, under a hand-light; sandy peat and loam, and a cool, moist situation.

GREENHOUSE ANNUALS, &c.

- W. capillaris* (hair-leaved). May. N. Holland. 1824. Biennial.
- *cernua* (drooping). Blue, white. July. Cape of Good Hope. 1804. Biennial.
- *dehiscens* (gaping). White. June. Bengal. 1818.
- *gracilis* (slender). April. N. S. Wales. 1794. Biennial.
- *litoralis* (sea-shore). April. Van Diemen's Land. 1820. Biennial.

HARDY PERENNIALS.

- W. Arvatica* (Arvatan). May. Spain. 1825.
- *capillacea* (hair-like-leaved). White. May. Cape of Good Hope. 1822.
- *grandiflora* (large-flowered). 1. July. Siberia. 1782.
- *Kitaibelii* (Kitaibel's). Violet. June. Hungary. 1823.
- *repens* (creeping). 4. White. July. 1830.

HARDY ANNUALS.

- W. Capensis* (Cape). July. 1819.
- *diffusa* (spreading). June. Cape of Good Hope. 1787.
- *diversifolia* (various-leaved). July. Cape of Good Hope. 1822.
- *flexilis* (bending). May. Cape of Good Hope. 1836.
- *hispidula* (bristly). Blue, white. June. Cape of Good Hope. 1816.
- *linearis* (narrow-leaved). White. July. Cape of Good Hope. 1822.
- *Lobelioides* (Lobelia-like). Pale red. July. Madeira. 1777.
- *nutabunda* (much-drooping). White. July. Calabria. 1830.
- *procumbens* (lying-down). July. Cape of Good Hope. 1824.

WALDSTEINIA. (Named after F. von Waldstein, a German botanist. Nat. ord., *Roseworts* [*Rosacæ*]. Linn., 12-Icosandria 1-Monogynia. Allied to *Geum*.)

Hardy herbaceous perennial. For culture, see GEUM.

- W. geoides* (avens-like). 3. Yellow. June. Hungary. 1804.

WALKERIA. (Named after Dr. R. Walker, founder of the Cambridge Bo-

tanio Garden. Nat. ord., *Ochnads* [*Ochnaceæ*]. Linn., 5-Pentandria 1-Monogynia.)

Stove, yellow-flowered evergreens. Cuttings of half-ripened shoots, or firm side-shoots, in sand, under a bell-glass, in the beginning of April; sandy loam and peat. Winter temp., 50° to 60°; summer, 60° to 85°.

- W. integrifolia* (entire-leaved). 12. Guiana.
- *serrata* (saw-leaved). 12. Malabar. 1824.

WALKS. See CONCRETE and GRAVEL WALKS.

WALL-CRESS. *A'rabis*.

WALLFLOWER. *Cheira'nthus*.

WALLICHIA. (In honour of Dr. Wallich, curator of the Calcutta Botanic Garden. Nat. ord., *Palms* [*Palmaceæ*]. Linn., 21-Monæcia 6-Hexandria.)

Moist-stove Palm. Requires a light, well-drained loam. Increased by suckers, which must be separated gradually, so as to induce them to root before being finally taken from the parent.

- W. densiflora* (thickly-flowered). Sikkim: Himalaya. This is the same as *W. oblongifolia*.

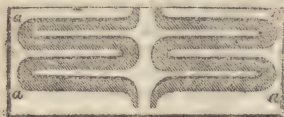
WALLS are usually built in panels, from fifteen to thirty feet in length, one brick thick, with pillars at these specified distances, for the sake of adding to their strength, and the foundation a brick and a half thick. The plan of Mr. Silverlock, of Chichester, is worthy of adoption, since, if well constructed, it is equally durable, and saves one-third of the expense. Walls so constructed are stated to become dry after rain much more rapidly than a solid wall of the same or any other thickness, and there appears not a shadow of a reason why they should not ripen fruit equally well. He forms the wall hollow, nine inches in breadth, by placing the bricks edgewise, so as to form two facings; they are laid in good mortar, and the joints carefully finished. They are placed alternately with their faces and ends to the outsides, so that every second brick is a tie, and in each succeeding course a brick with its end outwards is placed on the centre of one laid lengthwise on either side. The top of the wall must be covered with a coping of stone or bricks projecting eight inches. It is strengthened at every twenty feet by piers of fourteen-inch work, built in the same manner, with bricks laid on edge.

In every instance a wall should never be lower than eight feet. The thickness usually varies with the height of the wall, being nine inches if it is not higher than eight feet; thirteen and a half inches, if above eight and under fourteen feet; and

eighteen inches, from fourteen up to twenty feet.

Inclined or Sloping Walls have been recommended, but have always failed in practice. It is quite true that they receive the sun's rays at a favourable angle, but they retain wet, and become so much colder by radiation at night than perpendicular walls, that they are found to be unfavourable to the ripening of fruit.

The *Flued-wall* or *Hot-wall* is generally built entirely of brick, though, where stone is abundant and more economical, the back or north side may be of that material. A flued-wall may be termed a hollow wall, in which the vacuity is thrown into compartments *a a a a*, to facilitate the circulation of smoke and heat from the base, or surface of the ground, to within one or two feet of the coping. Such walls are generally arranged with hooks inserted under the coping, to admit of fastening some description of protecting covers, and sometimes for temporary glass frames. A length of forty feet, and from ten to fifteen high, may be heated by one fire, the furnace of which, *b*, being placed one or two feet below the surface of the ground, the first course, or flue, *c*, will commence one foot above it, and be two feet six inches or three feet high, and the second, third, and fourth courses, *d, e, f*, narrower as they ascend. The thickness of that side of the flue next the south or



preferable side should, for the first course, be four inches, or brick and bed; and, for the other courses, it were desirable to have bricks cast in a smaller mould; say for the second course three, for the third two and three quarters, and for the fourth two and a half inches in breadth. This will give an opportunity of bevelling the wall, and the bricks being all of the same thickness, though of different widths, the external appearance will be everywhere the same.—*Enc. Gard.*

WALNUT. *Ju'glans*.

WARDIAN CASE. See GLASS CASE.

WA'RREA. (Named after F. Warre, a botanical collector. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-Gynandria 1-Monandria. Allied to *Grobya*.)

Stove orchids, grown in baskets. See ORCHIDS.

W. bidentata (two-toothed-lipped). Purple, white. September. Caraccas. 1843.

—*cyanea* (blue-lipped). 1. White, blue. August. Columbia. 1843.

—*discolor* (two-coloured). Purple and white. Central America. 1854.

—*quadrata* (four-sided). Purple and white. Central Africa.

—*rube'scens* (reddish). Red. April. Brazil. 1838.

—*tricolor* (three-coloured). 2. Yellow, purple. August. Brazil. 1843.

WATER. The best for the gardener's purpose is rain water, preserved in tanks sunk in the earth, and rendered tight either by puddling, or bricks covered with Parker's cement. To keep these tanks replenished, gutters should run round the eaves of every structure in the garden, and communicate with them. Every hundred cubic inches of rain water contains more than four cubic inches of air, of which more than half are carbonic acid gas, and the remainder nitrogen and oxygen, in the proportion of sixty-two of the former to thirty-eight of the last named.

That obtained from ponds or springs invariably contains matters offensive or deleterious to plants. That known as hard water, containing an excess of salts of lime or magnesia, is invariably prejudicial, and pond water is scarcely less so. If it be stagnant, and loaded with vegetable extract, it is even worse than hard spring water; for it then contains carburetted hydrogen, and other matters noxious to vegetables. These last-named waters, if obliged to be employed to tender plants, should have a pint of the ammoniacal water of the gas-works, mixed thoroughly with every sixty gallons, an hour or two before they are used.

WATER-CRESS. (*Nasturtium officinale*.) *Varieties*.—Small Brown-leaved, hardiest; Large Brown-leaved, best for deep water; Green-leaved, easiest cultivated.

Planting in Water.—The trenches in which they are grown are so prepared, that, as nearly as possible, a regular depth of three or four inches can be kept up. These trenches are three yards broad, and eighty-seven yards long, and whenever one is to be planted the bottom is made quite firm and slightly sloping, so

that the water which flows in at one end may run out at the other. If the bottom of the trench is not sufficiently moist, a small body of water is allowed to enter to soften it. The cresses are then divided into small sets or cuttings, with roots attached to them; and these are placed at the distance of three or four inches from each other. At the end of five or six days a slight dressing of well-decomposed cow-dung is spread over all the plants, and this is pressed down by means of a heavy board, to which a long handle is obliquely fixed. The water is then raised to the depth of two or three inches, and never higher. Each trench is thus replanted annually, and furnishes twelve crops during the season. In the summer the cresses are gathered every fifteen or twenty days, but less frequently during winter; care is taken that at each gathering at least a third part of the bed is left untouched, so that neither the roots may be exhausted, nor the succeeding gathering delayed. After every cutting, a little decayed cow-dung, in the proportion of two large barrowsful to each trench, is spread over the naked plants, and this is beaten down by means of the rammer above mentioned. After the water-cresses have been thus treated for a twelvemonth, the manure forms a tolerably thick layer at the bottom of the trench, and tends to raise its level. To restore it to its original level, all the refuse should be thrown out upon the borders which separate the trenches from each other. These borders may be planted with artichokes, cabbages, or cauliflowers.

Planting in Borders.—This must be done in September, and in a moist, shady border. Plant slips, and the only cultivation necessary is to dig the earth fine, to draw a slight trench with a hoe, to fill this with water until it becomes a mud, to cover it about an inch deep with drift sand, and then to stick in the slips about six inches apart, watering them until established. The sand keeps the plants clean. They will be ready for gathering from in a very few weeks, and the shoots should be invariably cut, and not picked. They are not so mild-flavoured as those grown in water, but then they are free from aquatic insects, &c.

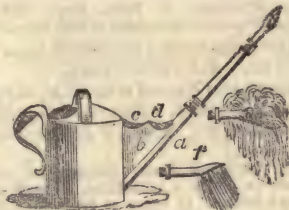
WATERFALL. See CASCADE.

WATERING ENGINE. See ENGINE.

WATERING POTS. These should have roses pierced with very fine holes; the

diameter of those usually used is too large. *Long-spouted* watering pots are required for watering plants in pots upon shelves. *French* watering pots have zig-zag bends in the spout, to break from the plant the force of the water. *Shelf* watering pots are small and flat-bodied, for giving water to plants overhead, and near the glass in greenhouses or stoves.

The accompanying engraving is of a watering pot from Mr. G. Thompson, 390, Oxford-street, who states that its superiority consists in the roses being so formed as to give the water thrown from them the nearest resemblance to a gentle shower of rain, which renders it peculiarly suitable for watering seedlings or other tender plants. As the brass joints which connect the roses to the spout are made water-tight, there is no danger of its returning outside, to the annoyance of the



person using it: *a* is the spout to which the roses are screwed; *b*, the box to contain either spout out of use; *c* and *d*, the holes in which the joints are placed; *e*, a large rose, for watering flower-beds; *f*, a smaller rose, for watering plants in pots.

WATER LEAF. *Hydrophyllum*.

WATER LEMON. *Passiflora laurifolia*.

WATER LILY. *Nymphaea*.

WATER MELON. *Cucumis Citrullus*, var.

WATER PLANTS. See AQUARIUM.

WATER REED. *Aruundo*.

WATER VINE. *Tetradlea potatoria*.

WATER VIOLET. *Hottonia*.

WATSONIA. (Named after *W. Watson*, a London apothecary. Nat. ord., *Irids* [Iridaceæ]. Linn., 3-Triandria 1-Monogynia. Allied to *Gladiolus*.)

Bulbs, from Cape of Good Hope, except where otherwise mentioned. For culture, see *GLADIOLUS*.

W. aleutica (aletris-like). 1½. Scarlet. June. 1774.

— *variegata* (variegated). 1½. Variegated. June. 1774.

— *angustata* (narrow-flowered). Scarlet. June. 1825.

— *brevisolia* (short-leaved). 1. Pink. May. 1794.

— *compacta* (compact). 1½. Purple. June. 1821.

— *fulgida* (bright). 4. Red. May. 1795.

W. glaucum (milky-green). 1½. White. July. Peru. 1823.

— *hu'milis* (lowly). 2. Lake. June. 1754.

— *iridifo'lia* (iris-leaved). 2½. Flesh. May. 1795.

— *leuca'ntha* (white-flowered). 6. White. Jamaica. 1825.

— *lilia'go* (liliago). 1. White. May. South Europe. 1596.

— *mi'nor* (smaller). ¾. White. May. South Europe. 1596.

— *longifo'lum* (long-leaved). Green. September. Lima. 1829.

— *margina'ta* (bordered). 3. Pink. July.

— *mi'nor* (lesser). 3. Pink. August. 1812.

— *Meria'na* (Merian's). 1½. Flesh. May. 1750.

— *Nepale'nse* (Nepaul). 2. White. May. Nepaul. 1824.

— *plantagi'nea* (plantain-like). 2. White. June. 1774.

— *puncta'ta* (dotted-flowered). 1. Purple. June. 1800.

— *purpu'rea* (purple). 6. Purple. Jamaica. 1825.

— *ro'sea* (rosy). 2. Pink. July. 1803.

— *al'bo* (red-and-white). 1. Pink, white. July.

— *variega'ta* (variegated). 1. Variegated. July.

— *ru'bens* (red). Red. June. 1825.

— *ramo'sum* (branchy). 2. White. May. South Europe. 1570.

— *spica'ta* (spiked). 1. Pink. May. 1791.

— *strictifo'ra* (erect-flowered). 1. Red. June. 1810.

WAYFARING-TREE. *Vibu'rnium lunta'na*.

WEEVIL. See ANTHONYMUS.

WEIGELIA. (Named after C. E. Weigel, a botanical writer. Nat. ord., *Caprifoliis* [*Caprifoliaceæ*]. Linn., 5-Pentandria 1-Monogynia.)

Hardy deciduous shrub. Cuttings in spring and autumn, under a hand-light, or even in a protected border. It forces as easily as a Lilac. Sandy loam and a little leaf-mould.

W. ro'sea (rosy). 8. Rosy. April. China. 1844.

WEINMANNIA. (Named after J. W. Weinmann, a German botanist. Nat. ord., *Cunoniads* [*Cunoniaceæ*]. Linn., 8-Octandria 2-Digynia.)

White-flowered, evergreen shrubs. Cuttings of half-ripened shoots in sand, under a bell-glass, in April. The stove ones in bottom-heat, the others in a close, cool pit or frame; sandy loam and leaf-mould, with a little old, dried cow-dung.

STOVE.

W. elliptica (oval-leaved). 4. May. S. Amer. 1824.

— *glab'ra* (smooth). 6. May. Jamaica. 1815.

— *hi'rta* (hairy). 6. May. Jamaica. 1820.

— *ova'ta* (egg-leaved). 6. May. Peru. 1824.

GREENHOUSE.

W. Australis (Australian). N. Holland. 1836.

— *panicula'ta* (panicked). Australia. 1831.

— *pub'scens* (downy). 1847.

WELCH ONION. See CRIBOUL.

WELLINGTONIA. (In honour of the great Duke of Wellington. Nat. ord., *Conifers* [*Coniferæ*]. Linn., 22-Diæcia 10-Monadelphia.)

This, appropriately to him whom it commemorates, is the loftiest of known trees. Specimens are known with trunks 300 feet high, and 20 feet in diameter. It is an evergreen, and perfectly hardy. For culture, see its ally, TAXODIUM.

W. gigante'a (gigantic). 300. California. 1853.

WENDLANDIA. (Named after J. C. Wendland, curator of the Botanic Garden, Hanover. Nat. ord., *Cinchonads* [*Cinchonaceæ*]. Linn., 6-Hexandria 4-Polygynia. Allied to Hindsia.)

Stove, white-flowered evergreens. Cuttings of the points of young shoots, or small young side-shoots, in sand, under a bell-glass, in May; sandy loam, fibry peat, and a little charcoal. Winter temp., 45° to 55°; summer, 60° to 80°. *Populifo'lia* is hardy, or nearly so.

W. panicula'ta (panicked). July. Malay. 1820.

— *populifo'lia* (poplar-leaved). 10. June. Florida. 1759.

— *tincto'ria* (dyer's). July. E. Ind. 1825.

WERNE'RIA. (Named after A. G. Werner, the celebrated mineralogist. Nat. ord., *Composites* [*Asteraceæ*]. Linn., 19-Syngenesia 2-Superflua. Allied to Doronicum.)

Half-hardy herbaceous. Division of the plant in spring; sandy loam, well drained; requires a cool greenhouse or a cold pit in winter, or may be treated as an alpine plant, protected from severe frost and wet in winter.

W. rigida (stiff). ½. February. Quito. 1828.

WESTONIA. Add the following to Glycine:—

G. trifolia'ta (three-leaved). Yellow, red. June. 1820.

WESTRINGIA. (Named after J. P. Westring, physician to the King of Sweden. Nat. ord., *Lipworts* [*Lamiaceæ*]. Linn., 14-Didynamia 1-Gynnospermia. Allied to Prostranthera.)

Greenhouse; blue-flowered evergreens, from New Holland. Cuttings of half-ripened shoots in May, in sand, under a bell or hand-glass; sandy loam and leaf-mould. Winter temp., 35° to 45°.

W. rubiafo'lia (rubia-leaved). 3. June. 1820.

— *triphy'lla* (three-leaved). September. 1823.

WHITE BEAM-TREE. *Py'rus a'ria*.

WHITE CEDAR. *Cupre'ssus thyoi'des*.

WHITE SPRUCE. *Pi'nus a'lba*.

WHITE-TREE. *Melaleuca leucade'ndron*.

WHITE VINE. *Ole'matis vita'lba*.

WHITFIELDIA. (Named after T. Whitfield, a botanical collector of African plants. Nat. ord., *Acanthads* [*Acanthaceæ*]. Linn., 14-Didynamia 2-Angiospermia. Allied to Barleria.)

For culture, see BARLERIA.

W. lateri'tia (brick-coloured). 3. Lilac, red. December. Sierra Leone. 1841.

WHITLAWIA. (In honour of F. Whitlaw, Esq., an Irish botanist. Nat. ord., *Hydrophyls* [*Hydrophyllaceæ*]. Linn., 5-Pentandria 1-Monogynia.)

Hardy annual.

W. grandifo'ra (large-flowered). 1½. Purple. June. California. 1854.

WHORTLEBERRY. *Vaccinium*.

WIDOW WAIL. *Cneo'rum*.

WIGA'NDIA. (Named after J. Wigand, Bishop of Pomerania. Nat. ord., *Hydrophylls* [*Hydrophyllaceæ*]. Linn., 5-*Pentandria* 2-*Digynia*. Allied to *Hydrolea*.)

Stove herbaceous. Seeds in a hotbed in spring; and, we should think, by cuttings of the young shoots, taken off with a heel, after the plant has broken a fresh after-pruning; sandy loam and fibry peat, with charcoal nodules. Winter temp., 50° to 55°; summer, 60° to 85°.

W. *Caraccasa'na* (Caraccas). 6. Lilac. April. Caraccas. 1836.

— *Ku'nthii* (Kunth's). Blue. April. Mexico. 1837.

— *wrens* (stinging). Violet. April. Mexico. 1827.

WILDERNESS. See LABYRINTH.

WILD LIQUORICE. *A'brus*.

WILD SERVICE. *Py'rus tormina'lis*.

WILLOW. *Salix*.

WILLUGHBE'IA. (Named after F. Willughby, a pupil of Ray. Nat. ord., *Dogbanes* [*Apocynaceæ*]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Allamanda*.)

Stove evergreen. For culture, see ALLAMA'NDA.
W. *edu'lis* (eatable). 10. Pale pink. July. E. Ind. 1818.

WIND FLOWER. *Gentia'na pneumona'n-the* and *Ane'mone*.

WINE PALM. *Caryôla urens*.

WINGED PEA. *Tetragono'lobus purpu'reus*.

WINTER ACONITE. *Era'nthis*.

WINTER BERRY. *Pri'nos*.

WINTER CRESS. *Barba'rea*.

WINTER MOTH. See CHEIMETOBIA.

WINTER SWEET. *Ori'ganum heracleo'ticum*.

WIRE-WORMS are the larvæ of various species of *Elater*, *Click Beetle*, or *Skip-Jack*. To remove the wire-worm from a soil, no mode is known but frequently digging it and picking them out, as their yellow colour renders them easily detected. To prevent their attack upon a crop, mix a little spirit of tar, or a larger quantity of gas-lime, with the soil. It has been stated that growing white mustard drives them away, and it is certainly worth the trial. To entrap them, and tempt them away from a crop they have attacked, bury potatoes in the soil near the crop; and if each potato has a stick thrust through it, this serves as a handle by which it may be taken up, and the wire-worms which have penetrated it be destroyed. To decoy them from beds of Anemones, Ranunculuses, &c., it is said to be a successful plan to grow round the beds an edging of daisies, for the roots of which they have a decided preference.

WISTA'RIA. (Named after O. Wistar, an American professor. Nat. ord., *Leguminous Plants* [*Fabaceæ*]. Linn., 17-*Diadelphia* 4-*Decandria*.)

Hardy deciduous, purplish-flowered climbers. Seeds when obtainable; cuttings of the strong roots; by cuttings of the young shoots, getting firm, under a hand-light, in sandy soil, but more generally by layers of long-ripened young shoots, as then almost every bud will form a plant. Sandy loam and peat.

W. *floribu'nda* (bundle-flowered). May. Japan.

— *frute'scens* (shrubby). 10. July. N. Amer. 1724.

— *Sine'nsis* (Chinese). May. China. 1818.

— *alba* (white). 20. White. April. China. 1846.

WITCH HAZEL. *Hamame'lis*.

WITHERI'NGIA. (Named after Dr. Withering, a British botanist. Nat. ord., *Nightshades* [*Solanaceæ*]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Capsicum*.)

Greenhouse herbaceous and evergreens. Perennials, by seed, and divisions of the plant and tubers; evergreens, by cuttings in sand, under a bell-glass; rich, sandy loam. Winter temp., 35° to 48°.

W. *crassifo'lia* (thick-leaved). 2. Yellow. June.

— *monta'na* (mountain). 1. White. June. Peru. 1822.

— *purpu'rea* (purple). $\frac{1}{2}$. Pale purple. July. Chili. 1829. Tuberous.

— *stramonifo'lia* (stramonium-leaved). 3. Yellow. June. Mexico. 1823. Evergreen.

WITSE'NIA. (Named after M. Witsen, a Dutch patron of botany. Nat. ord., *Irids* [*Iridaceæ*]. Linn., 3-*Triandria* 1-*Monogynia*.)

Greenhouse, purplish-flowered, herbaceous plants, from the Cape of Good Hope. Seeds in a slight hotbed in April; divisions of the plant then, or taking off the sucker-like offsets; sandy peat and a little fibry loam, with a little rough charcoal, and well-drained. Winter temp., 40° to 48°.

W. *corymbo'sa* (corymbd). $\frac{1}{2}$. June. 1803.

— *Mau'ra* (Moorish). 4. December. 1790.

— *parti'ta* (divided). April. 1822.

— *ramo'sa* (branched). 1. April. 1819.

WOLF'S-BANE. *Aconi'tum lupuci'dum*.

WOLLASTO'NIA. (Named after Dr. Wollaston, a great chemist. Nat. ord., *Composites* [*Asteraceæ*]. Linn., 19-*Syngenesia* 2-*Superflua*.)

An annual. Seeds in a hotbed in March or April; plants pricked out, and afterwards bloomed in the greenhouse or plant-stove; sandy loam and peat.

W. *bisfo'ra* (two-flowered). Yellow. July. E. Ind. 1818.

WOOD ASHES. See ASHES.

WOODBINE. *Caprifo'lium periclyme'num*.

WOODLICE. See ONI'SCUS.

WOODROOF. *Aspe'rula*.

WOOD SORREL. *O'xalis*.

WOOLLEN RAGS. See ANIMAL MATTERS.

Woo'DSIA. (Named after *J. Woods*, a British botanist. Nat. ord., *Ferns* [Polypodiaceæ]. Linn., 24-*Cryptogamia* 1-*Filices*.)

Hardy, brown-spored Ferns, except *mo'llis* and *pubescens*, which require the stove. See **FERNs**.
W. Caucasica (Caucasian). September. Caucasus.
— glabellia (smoothish). September. N. Amer. 1827.

— hyperbo'rea (northern). $\frac{1}{2}$. July. Scotland.
— live'nsis (Ilva). $\frac{1}{2}$. June. Britain.
— mo'llis (soft). July. Brazil.
— obtusa (blunt). $\frac{1}{2}$. June. N. Amer. 1835.
— Perriniana (Perrin's). June. N. Amer.
— pubescens (downy). June. Brazil. 1826.
— vestita (clothed). June. N. Amer. 1816.

WOODWARDIA. (Named after *T. J. Woodward*, a British botanist. Nat. ord., *Ferns* [Polypodiaceæ]. Linn., 24-*Cryptogamia* 1-*Filices*.)

Hardy brown-spored Ferns. *Ra'dicans* requires shelter in winter. See **FERNs**.

W. angustifolia (narrow-leaved). 1. August. N. Amer. 1812.
— Japonica (Japanese). September. Japan.
— ra'dicans (rooting-leaved). $\frac{1}{2}$. July. Madeira. 1779.
— thelypteroides (thelypteris-like). September. N. Amer.
— Virginica (Virginian). 1. August. N. Amer. 1724.

WORKING is a gardener's term for the practice of grafting. "To work" upon a stock is to graft upon it.

WORMIA. (Named after *O. Wormius*, a Danish naturalist. Nat. ord., *Dilleniads* [Dilleniaceæ]. Linn., 13-*Polyandria* 5-*Pentagynia*. Allied to *Dillenia*.)

Stove evergreen. See **DILLE'NIA**.

W. dentata (toothed). 20. Yellow. Ceylon. 1818.

WORMWOOD. *Artemisia*.

WOUNDS. See **EXTRAVASATED SAP**.

WOUNDWORT. *Anthyllis vulneraria*.

WRIGHTIA. (Named after *Dr. Wright*, of Jamaica. Nat. ord., *Dogbanes* [Apocynaceæ]. Linn., 5-*Pentandria* 1-*Monogynia*. Allied to *Alstonia*.)

Stove evergreen shrubs, with white flowers, and from the East Indies, except where otherwise described. For culture, see **ALSTONIA**.

W. angustifolia (narrow-leaved). 8. September. S. Amer. 1752.
— antidysenterica (antidysenteric). 10. 1778.
— coccinea (scarlet). 12. Scarlet. July. 1822.
— dubia (doubtful). Orange. June. 1813.
— latifolia (broad-leaved). 30. August. Havannah. 1733.
— pubescens (downy). 4. Green, yellow. March. N. Holland. 1829.
— tinctoria (dye's). 15. 1812.
— Zeylanica (Ceylon).

WULFENIA. (Named after *F. Wulfen*, a botanical author. Nat. ord., *Figworts* [Scrophulariaceæ]. Linn., 2-*Diandria* 1-*Monogynia*.)

Hardy herbaceous. Seeds and divisions in spring; light, rich soil, and a dry, elevated place in winter, or kept from damp in a dry, cool pit.

W. Amherstiana (Amherst's). $\frac{3}{4}$. Liban. July. Chinese. Tartary. 1846.
— Carinthiaca (Carinthian). $\frac{1}{2}$. Blue. July. Carinthia. 1817.
— Notonia'na (East Indian). $\frac{3}{4}$. Purple. November. Ceylon. 1851.

WULFFIA. (Named after *J. C. Wulff*, author of "Flora Borussica." Nat. ord., *Composites* [Asteraceæ]. Linn., 19-*Syngenesia* 4-*Necessaria*. Allied to *Rudbeckia*.)

Stove evergreen shrub. Cuttings of young shoots in sandy soil, in spring or summer; sandy loam and leaf-mould. Winter temp., 45° to 55°; summer, 60° to 80°.

W. maculata (spotted). Yellow. June. Brazil. 1822.

WURMBEA. (Named after *F. V. Wurmbe*, a Dutch naturalist. Nat. ord., *Melanths* [Melanthaceæ]. Linn., 6-*Hexandria* 3-*Trigynia*. Allied to *Melanthium*.)

Half-hardy bulbs, from the Cape of Good Hope, and all but one white-flowered. For culture, see **MELANTHIUM**.

W. campanulata (bell-flowered). $\frac{1}{2}$. June.
— longiflora (long-flowered). $\frac{3}{4}$. May. 1788.
— pumila (dwarf). $\frac{1}{2}$. May. 1800.
— purpurea (purple). 1. Purple. May. 1788.

WYCH ELM. *Ulmus montanus*.

X.

XANTHORHIZA. Yellow Root. (From *xanthos*, yellow, and *rhiza*, a root. Nat. ord., *Crowfoots* [Ranunculaceæ]. Linn., 5-*Pentandria* 6-*Polygynia*.)

Hardy evergreen shrub. Suckers; sandy loam and peat; does best in a moist situation.

X. apiifolia (parsley-leaved). 3. Purple, green. February. N. Amer. 1766.

XANTHORHIZA. Grass-tree. (From *xanthos*, yellow, and *rheo*, to flow; yellow juice. Nat. ord., *Lilyworts* [Liliaceæ]. Linn., 6-*Hexandria* 1-*Monogynia*. Allied to *Aphyllanthus*.)

Greenhouse, white-flowered plants, from New Holland. For culture, see **APHYLLANTHES**.

X. australis (southern). 3. 1824. Evergreen.
— bracteata (bracted). 2. 1810. Herbaceous.
— hastilis (spear). 4. 1803. Evergreen.
— humilis (dwarf). 2. 1825. Herbaceous.
— media (intermediate). 2. 1803. Evergreen.
— minor (smaller). 2. 1804. Herbaceous.

XANTHOSOMA. (From *xanthos*, yellow, and *soma*, a body; the edible roots. Nat. ord., *Arads* [Araceæ]. Linn., 21-*Monocia* 7-*Heptandria*. Allied to *Caladium*.)

Stove plants. For culture, see **CALADIUM**.

X. Jacquini (Jacquin's). Yellow. May. S. Amer. 1815. Evergreen.
— sagittifolia (arrow-leaved). White. May-V. Ind. 1710. Herbaceous.

XANTHOXYLON. Toothache-tree. (From *xanthos*, yellow, and *xylon*, wood. Nat. ord., *Xanthoxyls* [*Xanthoxylaceæ*]. Linn., 22-Diccia 5-Pentandria.)

Nearly all white-flowered; cuttings in sand, under a bell-glass, in May; the stove species in heat; the hardy species by seed, pieces of the roots, and cuttings of the ripened shoots in sandy soil, under a hand-light; sandy loam suits any of them.

HARDY DECIDUOUS.

X. fraxi-neum (ash-like). 15. March. N. Amer. 1759.

— *mit'e* (mild). 10. Yellowish. March. N. Amer. 1818.

— *trica'rpum* (three-capsuled). 6. July. N. Amer. 1806.

STOVE EVERGREENS.

X. offi'ne (related). Mexico. 1826.

— *Budru'nga* (Budrunga). 20. March. E. Ind. 1825.

— *cla'va-Her'culis* (Hercules'-club). 50. W. Ind. 1739.

— *heterophy'llum* (various-leaved). Bourbon. 1823.

— *hermaphrodi'tum* (two-sexed). 50. Guiana. 1823.

— *juglandi'foli'um* (walnut-leaved). W. Ind. 1822.

— *nit'idum* (shining). 6. China. 1823.

— *piperi'tum* (pepper-like). 6. September. Japan. 1773. Greenhouse.

— *ptero'ta* (winged-leaf-stalked). August. Jamaica. 1768.

— *sapindi'des* (sapinda-like). Jamaica.

— *spino'sum* (thorny). 6. Jamaica. 1824.

— *trago'des* (goat's-tooth). 6. St. Domingo. 1759.

— *triphy'llum* (three-leaved). 4. Penang. 1820.

XERANTHEMUM. (From *xeros*, dry, and *anthos*, a flower; everlasting flower. Nat. ord., *Composites* [*Asteraceæ*]. Linn., 19-Syngenesia 2-Superflua.)

The flowers, after being dried, may be dyed of any colour. Hardy annuals. Seeds in the open border in April.

X. d'nnuum (annual). 3. Purple. July. South Europe. 1570.

— *ere'ctum* (upright). White. June. Persia. 1836.

— *inape'rtum* (unopened). 2. Purple. July. South Europe. 1620.

— *longipappo'sum* (long-feathered). White. June. Persia. 1836.

— *orienta'le* (eastern). 2. White. July. Levant. 1713.

XEROPHYLLUM. (From *xeros*, dry, and *phyllon*, a leaf; dry, grassy leaves. Nat. ord., *Melanths* [*Melanthaceæ*]. Linn., 6-Hexandria 3-Trigynia. Allied to *Helonias*.)

White-flowered, herbaceous perennials, from North America. Seeds and division of the plant in spring. A rather moist, peaty border suits them best. *Sabadilla* requires a stove.

X. asphodeloi'des (asphodel-like). 1. May. 1765.

— *grami'neum* (grassy). 2. May. 1812.

— *Sabadilla* (Sabadilla). 3. Vera Cruz. 1830.

— *te'nax* (tough-leaved). 1½. May. 1811.

XIMENEZIA. (Named after *J. Ximenes*, a Spanish apothecary. Nat. ord., *Compo-*

sites [*Asteraceæ*]. Linn., 19-Syngenesia 2-Superflua. Allied to *Sanvitalia*.)

Yellow-flowered, Mexican plants. Annuals, by seeds in the open border in April; perennials, also, by division of the plant in spring, and these, in general, will want the protection of a dry, cool pit in winter.

ANNUALS.

X. Cavanille'sii (Cavanilles'). 2. August. 1820.

— *fo'tida* (stinking). 24. August. 1824.

— *heterophy'lla* (variable-leaved). 2. July. 1827.

HERBACEOUS PERENNIALS.

X. corda'ta (heart-leaved). 3. September. 1825.

— *enceltoi'des* (encelia-like). 3. August. 1795.

XIME'NIA. (Named after *F. Ximenes*, a Spanish naturalist. Nat. ord., *Olacads* [*Olacaceæ*]. Linn., 8-Octandria 1-Monogynia.)

Stove evergreens. Cuttings of half-ripened shoots in sand, under a glass, in May, and in bottom-heat; sandy, fibry peat, and lumpy loam. Winter temp., 55° to 60°; summer, 60° to 85°.

X. America'na (American). 15. Yellowish. W. Ind. 1759.

— *ine'r'mis* (unarmed). 40. White. Jamaica. 1810.

— *lanceola'ta* (spear-leaved). Yellow. April. China. 1820.

— *oblongifo'lia* (oblong-leaved). Green. June. Australia. 1823.

XIPHI'DIUM. (From *xiphos*, a sword; sword-like leaves. Nat. ord., *Lilyworts* [*Liliaceæ*]. Linn., 6-Hexandria 1-Monogynia. Allied to *Wachendorfia*.)

Stove, West Indian, herbaceous perennials. Divisions of the plant as fresh growth commences; rich, fibry loam and fibry peat, and a small portion of charcoal and sand. Winter temp., 50° to 58°; summer, 60° to 85°.

X. al'bum (white). 1½. White. 1787.

— *caru'leum* (blue). 1½. Blue. 1793.

— *gigante'um* (gigantic). White. October. 1845.

XIPHO'PTERIS. Sword Fern. (From *xiphos*, a sword, and *pterus*, a fern. Nat. ord., *Ferns* [*Polypodiaceæ*]. Linn., 24-Cryptogamia 1-Filices.)

Stove, brown-spored Ferns. See **FERNs**.

X. heterophy'lla (variable-leaved). ½. June. N. Holland. 1824.

— *myosuroi'des* (myosurus-like). June. W. Ind. 1824.

— *serrula'ta* (saw-like). ½. June. W. Ind. 1823.

XYLOPHY'LLA. (From *xylon*, wood, and *phyllon*, a leaf; texture of the leaves. Nat. ord., *Spurgeworts* [*Euphorbiaceæ*]. Linn., 21-Monœcia 10-Decandria. Allied to *Phyllanthus*.)

Stove, yellow- and red-flowered evergreens, from Jamaica, unless otherwise mentioned. For culture, see **PHYLLANTHUS**.

X. angustifo'lia (narrow-leaved). July. 1789.

— *clonga'ta* (elongated-leaved). August. 1820.

— *falca'ta* (sickle-leaved). July. 1699.

— *latifo'lia* (broad-leaved). August. 1783.

— *linea'ris* (narrow-leaved). August. 1819.

- X. longifo'lia* (long-leaved). August, E. Ind. 1816.
 — *me'dia* (intermediate). August. 1825.
 — *monta'na* (mountain). August. 1819.
 — *obova'ta* (reversed-egg-leaved). August. Siberia. 1806.
 — *ramifo'ra* (branch-flowered). August. Siberia. 1785.
 — *specio'sa* (showy). September. 1818.

XYLO'PIA. (From *xylon*, wood, and *pieron*, bitter; the wood and fruit of *X. gla'bra* are called Bitterwood in the West Indies. Nat. ord., *Anonad* [Anonaceæ]. Linn., 13-Polyandria 6-Polygynia.)

Stove evergreens. Cuttings of firm, stubby side-shoots one year old, with most of the leaves adhering, in sand, under a bell-glass; sandy loam and fibry peat. Winter temp., 50° to 55°; summer, 60° to 85°.

- X. frute'scens* (shrubby). 4. Guiana. 1823.
 — *gla'bra* (smooth-fruited). 20. Jamaica. 1820.
 — *murica'ta* (rough-fruited). 4. W. Ind. 1779.

Y.

YELLOW ROOT. *Hydra'stis*.

YELLOW SULTAN. *Centau'rea suave'olens*.

YEW-TREE. *Taxus*.

YU'CCA. Adam's Needle. (Name of the plant in Peru. Nat. ord., *Lilyworts* [Liliaceæ]. Linn., 6-Hexandria 1-Monogynia.)

All whitish-flowered evergreens. Sometimes by seeds, sown immediately they are ripe, in a slight hothed; generally by suckers, but also, at times, from young shoots that branch from the stems; deep, dry, sandy loam is their favourite soil; a few require the assistance of a stove or greenhouse, but most of them stand the open air in England. *Aloifo'lia* is, perhaps, the tenderest of all the hardy ones. They flourish near the sea-shore. We may add, that they seem quite at home on a knoll, or on rock-work.

HARDY.

- Y. acumina'ta* (pointed-flowered). 6. August. 1800.
 — *aletris'rmis* (aletris-like). 2. Cape of Good Hope. 1823. Greenhouse.
 — *aloifo'lia* (aloe-leaved). 2. August. S. Amer. 1696.
 — — *pe'ndula* (drooping-leaved). 12. August.
 — *variega'ta* (variegated-leaved). 2. August.
 — *angustifo'lia* (narrow-leaved). 2. July. Mis-souri. 1811.
 — *arcua'ta* (bowed). 1. July. 1817.
 — *conca'va* (hollow-leaved). 1½. August. 1816.
 — *conspi'cua* (conspicuous). 3. 1818. Greenhouse.
 — *crenula'ta* (scalloped). 1818.
 — *draco'nis* (dragon). 8. August. S. Amer. 1732. Greenhouse.
 — *filamento'sa* (thready). 2. September. Virginia. 1675.
 — — *variega'ta* (variegated-leaved). 2. Sep-tember.
 — *fla'ccida* (flaccid). 2. 1816.
 — *glaucescens* (milky-green). 2. July. N. Amer. 1819.
 — *glorio'sa* (glorious). 4. July. America. 1596.
 — *fo'lis-variegat'is* (variegated-leaved). July.
 — *obli'qua* (oblique-leaved). 4. 1808.
 — *ma'jor* (larger). 4. 1808.
 — *pube'rula* (rather-downy). August.
 — *recu'rva* (curled-back-leaved). 3. August. Georgia. 1794.

- Y. ruf'o-ci'ncta* (reddish-edged). 1½. July. 1816. Stove.
 — *serrula'ta* (saw-edged). 10. Carolina. 1808.
 — *stri'cta* (upright). 1. July. Carolina. 1817.
 — *supe'rba* (superb). 10. August.
 — *tenuifo'lia* (slender-leaved). 1. Malta. 1817.

STOVE.

- Y. gra'cilis* (slender). July. Mexico. 1829.
 — *graminifo'lia* (grass-leaved). Mexico. 1838.
 — *latevi'rens* (pale green). Mexico. 1838.
 — *longifo'lia* (long-leaved). Mexico. 1830.
 — *Pitcairniafo'lia* (Pitcairnia-leaved). Mexico. 1838.
 — *serratifolia* (saw-leaved). Mexico. 1838.

Z.

ZALA'CCA ASSA'MICA. *Ca'lumnus Zala'cca*.

ZA'MIA. (From *zamia*, loss; the barren appearance of the male flowers. Nat. ord., *Cycads* [Cycadaceæ]. Linn., 22-Diæcia 12-Icosandria.)

A race of plants intermediate between Ferns and Palms. Those not otherwise specified are from the Cape of Good Hope, and will succeed in a greenhouse; but all do best in a stove. Suckers; rich, loamy soil. Winter temp., 45° to 55°; summer, 60° to 80°.

- Z. angustifo'lia* (narrow-leaved). 2. July.
 — *Ca'ffra* (Caffrarian). 4.
 — *cycadifo'lia* (cycas-leaved). 3. 1775.
 — *cy'cadis* (cycas-like). 3. 1775.
 — *de'bitis* (weak-long-leaved). 1. July. W. Ind. 1777.
 — *furfura'cea* (scurfy). 3. July. W. Ind. 1691.
 — *ho'rrida* (horrid). 5. 1800.
 — *integrifo'lia* (entire-leaved. Dwarf). 2. July. W. Ind. 1768.
 — *lanugino'sa* (woolly). 3. 1812.
 — *latifo'lia* (broad-leaved). 6.
 — *longifo'lia* (long-leaved). 7. 1818.
 — *me'dia* (mediate). 2. July. W. Ind. 1768.
 — *pruni'fera* (plum-bearing). 14.
 — *pu'mila* (dwarf). 1½. 1812.
 — *pu'ngens* (stinging). 10. 1775.
 — *pygma'ea* (pigmy). 1. May. W. Ind.
 — *repa'nda* (wavy-leaved). 6.
 — *spino'sa* (spiny). 5.
 — *spira'tilis* (spiral). 3. July. N. S. Wales. 1796.
 — *te'nuis* (slender). 1. Bahama Islands.
 — *tridenta'ta* (three-toothed). 2. 1814.

ZANTHO'XYLUM. See XANTHO'XYLON.

ZAUSCHNE'RIA. (Named after M. Zauschner, a German. Nat. ord., *Onagrad* [Onagraceæ]. Linn., 8-Octandria 1-Monogynia. Allied to *Epiobium*.)

A hardy plant, with the habit of a Fuchsia. Division of the plant in spring; cuttings of the shoots in spring, summer, and autumn, under a hand-light. It is a good pot and bedding-plant; for the latter purpose, as the flowers are apt to drop too much, mix it with *Cup'hea strigillo'sa*; rich, light soil.

- Z. Califo'rnica* (Californian). 3. Bright scarlet. June. Santa Cruz. 1847.

ZE'A. Maize, or Indian Corn. (From *zao*, to live; a food-plant. Nat. ord., *Grasses* [Graminaceæ]. Linn., 21-Monæcia 3-Triandria.)

Annuals. Seeds in a slight hotbed in early spring, and the seedlings planted out into good soil. The heads, when half-grown and green, make an excellent vegetable when boiled.

Z. Cura'gua (Curagua). 1. June. Chili. 1824.
— *ma'ys* (maize). 2. June. America. 1562.

ZEPHYRA'NTHEs. (From *zephyr*, the west wind, and *anthos*, a flower. Nat. ord., *Amarylids* [*Amarylidae*]. Linn., 6-*Hexandria* 1-*Monogynia*. Allied to *Habranthus*.)

Half-hardy bulbs, with only one flower on a stalk. For culture, see *HABRA'NTHUS*.

Z. Atama'sco (Atamasco. *Lily*). $\frac{1}{2}$. White. May. N. Amer. 1629.

— *ca'nidda* (white). $\frac{1}{2}$. White. September. Peru. 1822.

— *carina'ta* (keeled). $\frac{1}{2}$. Pink. May. Mexico. 1824.
— *chloroleu'ca* (greenish-white). $\frac{1}{2}$. Pale green. July.

— *Drummo'ndii* (Drummond's). White, pink. July. Texas. 1835.

— *meso'chloa* (green-centred). 1. White, green. June. Buenos Ayres. 1825.

— *ro'sea* (rosy). $\frac{1}{2}$. Red. May. Havannah. 1823.

— *stria'ta* (channelled). $\frac{3}{4}$. White. April. Mexico. 1824.

— *tubispa'tha* (tube-spathed). $\frac{1}{2}$. White. May. S. Amer.

— *verecu'nda* (blushing). $\frac{3}{4}$. Pale red. April. Mexico. 1824.

ZI'CHYA. (Named after Countess Zichy, a German patroness of botany. Nat. ord., *Leguminous Plants* [*Fabaceæ*]. Linn., 17-*Diadelphia* 4-*Decandria*. Allied to *Kennedyia*.)

Greenhouse evergreen twiners, from Swan River. For culture, see *KENNE'DYA*.

Z. angustifo'lia (narrow-leaved). Crimson. May. 1839.

— *cocci'nea* (scarlet). May.

— *glabra'ta* (smooth). 6. Orange. May. 1834.

— *heterophy'lla* (various-leaved). 4. Purple. April. 1826.

— *inophy'lla* (nerve-leaved). 4. Scarlet. July. 1824.

— *microphy'lla* (small-leaved). Crimson. July.

— *mol'ly* (molly). Scarlet. July. 1837.

— *panno'sa* (wrinkled-leaved). 6. Crimson. May. 1840.

— *seri'cea* (silky). 4. Scarlet. May. 1825.

— *tri'color* (three-coloured). 1. Red, yellow, purple. May. 1837.

— *villo'sa* (shaggy). 3. Vermilion. June. 1841.

ZIE'RIA. (Named after M. Zier, a Polish botanist. Nat. ord., *Rueworts* [*Rutaceæ*]. Linn., 4-*Tetrandria* 1-*Monogynia*. Allied to *Boronia*.)

Greenhouse, white-flowered evergreens, from New Holland. For culture, see *BOBO'NIA*.

Z. arbore'scens (tree-like). 1822.

— *hirsu'ta* (hairy). 4. June.

— *laviga'ta* (smooth-leaved). 3. June. 1822.

— *lanceola'ta* (spear-leaved). June. 1808.

— *macrophy'lla* (large-leaved). 4. June. 1820.

— *microphy'lla* (small-leaved). 3. June. 1822.

— *obcorda'ta* (reversed-egg-leaved). 4. June. 1824.

— *octa'ndra* (eight-stamened). 5. Green. 1825.

— *paucifo'ra* (few-flowered). 1822.

— *pilo'sa* (shaggy). 4. June. 1822.

— *revolu'ta* (curled-back-leaved). June. 1824.

ZI'NGIBER. Ginger. (From the Indian name. Nat. ord., *Gingerworts* [*Zingibera-ceæ*]. Linn., 1-*Monandria* 1-*Monogynia*.)

Stove herbaceous perennials, from the East Indies; yellow-flowered, where not otherwise mentioned; division of the roots; fibry peat and sandy loam. Winter temp., 40° to 45°; summer, 60° to 90°. See *GINGER*.

Z. Ama'ricans (Amaricans). 3. Penang. 1846.

— *capita'tum* (round-headed). 4. February. 1825.

— *Casumu'nar* (Casumunar). 2. February. 1807.

— *chrysa'nthum* (gold-flowered). 8. July. 1821.

— *eta'tum* (lofty). 6. July. 1820.

— *ligula'tum* (strap-leaved). 2. Pink. June. 1823.

— *Mio'ga* (Mioga). 2. Pink. May. Japan. 1796.

Greenhouse.

— *officinal'e* (shop). 2. Red. July. 1605.

— *pandura'tum* (fiddle-tipped). 5. Pink. June. 1812.

— *purpu'reum* (purple). 2. Purple. September. 1796.

— *ro'seum* (rosy). 2. Rose, yellow. August. 1822.

— *ru'hens* (red). 6. Red. October. 1822.

— *squarro'sum* (spreading). 2. Pink. August. 1822.

— *Zeru'mbet* (Zerumbet). 4. August. 1690.

ZI'NNIA. (Named after J. G. Zinn, a German professor of botany. Nat. ord., *Composites* [*Asteraceæ*]. Linn., 19-*Syn-genesia* 2-*Superflua*.)

Mexican annuals, scarlet-flowered, with one exception. Seeds in April in a hotbed; seedlings hardened off, and then transferred to the flower-garden, in good, rich, loamy soil. If sown earlier, they are apt to be drawn and attacked by insects. We have had them fine by sowing under a hand-light, without bottom-heat, in the middle of April, and throwing a mat over the glass at night.

Z. angustifo'lia (narrow-leaved). 2. July. 1824.

— *e'legans* (elegant). 2. July. 1796.

— *cocci'nea* (scarlet-rayed). 2. August. 1829.

— *hy'brida* (hybrid). 2. June. 1818.

— *multifo'ra* (many-flowered). 2. August. 1770.

— *paucifo'ra* (few-flowered). 2. Yellow. July.

Peru. 1753.

— *revolu'ta* (curled-back). 2. July. 1817.

— *tenuifo'ra* (slender-flowered). 2. July. 1799.

— *verticilla'ta* (whorl-leaved). 2. July. 1789.

ZIZI'PHORA. (From *zizi*, of the Indians, and *phoreo*, to bear. Nat. ord., *Lipworts* [*Lamiaceæ*]. Linn., 2-*Diandria* 1-*Monogynia*. Allied to *Monarda*.)

Red-flowered, where not otherwise mentioned. Annuals, by seed in April; perennials, by seeds, divisions, and cuttings; dry, sandy loam, and elevated places, such as rock-works; the perennials require a little protection in winter.

HALF-HARDY EVERGREENS.

Z. acinoi'des (thyme-like). $\frac{1}{2}$. July. Siberia. 1786.

Deciduous.

— *clinopodioi'des* (basil-like). $\frac{3}{4}$. Pink. June.

Siberia. 1821.

— *cane'scens* (hoary). July. 1803.

— *me'dia* (mediate). $\frac{1}{2}$. July. Caucasus. 1822.

— *dasyu'ntha* (thick-flowered). $\frac{1}{2}$. July. Siberia. 1803.

ANNUALS.

Z. capita'ta (round-headed). $\frac{1}{2}$. July. Syria. 1752.

— *Hispa'nica* (Spanish). $\frac{1}{2}$. June. Spain. 1759.

— *Tau'rica* (Taurian). $\frac{1}{2}$. Red, purple. August.

Tauria. 1816.

— *tenu'ior* (slenderer). $\frac{1}{2}$. Purplish. June. Le-

vant. 1752.

ZIZYPHUS. (The Egyptian name of *Z. lotus*. Nat. ord., *Rhamnads* [Rhamnaceæ]. Linn., 5-Pentandria 1-Monogynia.)

Greenish-yellow-flowered, where not otherwise mentioned. Cuttings of the roots, suckers, and cuttings of ripened shoots under a hand-light or bell-glass, according as the species are hardy or tender; deep, dry loam for the hardy, peat and sandy loam for the tender.

HARDY DECIDUOUS, &c.

- Z. flexuosa* (zigzag). 6. Nepal. 1820.
- *incurva* (curled-in). 5. Nepal. 1823.
- *spina-Christi* (Christ's thorn). 6. August. Egypt.

- — *inermis* (unarmed). 6. August.

STOVE EVERGREENS, &c.

- Z. Caracutla* (Caracutta). E. Ind. 1820.
- *longifolia* (long-leaved). India. 1837.
- *melastomoides* (melastoma-like). 6. N. Holland. 1824.
- *mucronata* (pointed-leaved). 30. Cape of Good Hope. 1810. Greenhouse.
- *Napeca* (Napeca). 15. Ceylon. 1816.
- *nitida* (shining). 6. June. China. 1822.
- *spina Christi trineurva* (three-nerved Christ's thorn). E. Ind. 1821.

ZoR'NIA. (Named of *J. Zorn*, a German botanist. Nat. ord., *Leguminous Plants* [Fabaceæ]. Linn., 16-Monadelphica 6-Decandria.)

Annuals, seeds in a hotbed, and the plants afterwards bloomed in the greenhouse; perennials, also, by seeds, and dividing the plants in spring, and requiring to be kept from frost, and rather dry in winter; rich, light, fibry loam.

- Z. angustifolia* (narrow-leaved). 1. Purple. July. India. 1733. Annual.
- *Cape'nsis* (Cape). 4. Yellow. July. Cape of Good Hope. 1824. Greenhouse perennial.
- *tetraphylla* (four-leaved). 4. Yellow. July. Carolina. 1824. Greenhouse perennial.

ZYGADENUS. (From *zygno*, to join, and *aden*, a gland; double glands on the perianth. Nat. ord., *Melanths* [Melanthaceæ]. Linn., 6-Hexandria 1-Monogynia. Allied to *Veratrum*.)

Hardy, North American, herbaceous perennials. Seeds, and division of the plant in spring; a moist, shady peat-border.

- Z. bracteatus* (bracted). 1½. Cream. May. 1811.
- *commutatus* (changeable). 1. Cream. June. 1811.
- *elegans* (elegant). 1. White. May. 1828.
- *glaberrimus* (smoothest). 1. Cream. June. 1811.
- *hybridum* (hybrid). 4. White. June. 1822.
- *monocum* (monocleous). 2. Brown. June. 1811.
- *Virginicum* (Virginian). 2. Brown. June. 1768.

ZYGOPETALUM. (From *zygos*, a yoke,

and *petalon*, a petal; the union of the bases of the petals and sepals. Nat. ord., *Orchids* [Orchidaceæ]. Linn., 20-Gynandria 1-Monandria.)

Stove orchids, grown in pots. See **ORCHIDS.**

- Z. Africa'num* (African). Violet. January. Guatimala. 1839.
- *brachypetalum* (short-petaled). Green, blue. October. Brazil. 1844.
- *cochlear'e* (spoon-tipped). 1. White, purple. August. Demerara.
- *crinitum* (tressed). Green, blue. November. Brazil. 1829.
- *gramineum* (grass-leaved). Green, blue. November. Popayan. 1844.
- *intermedium* (intermediate). Green, blue. November. Brazil. 1844.
- *Mackay'i* (Mackay's). 1. Green, lilac. March. Brazil. 1825.
- *maxillare* (tooth-like-flowered). 1. Brown, green. September. S. Amer. 1829.
- *Murrayanum* (Murray's). 4. Green, white. July. Brazil. 1837.
- *rostratum* (beaked). 2. White, brown. September. Demerara. 1827.
- *stenochilum* (narrow-lipped). 4. White, yellow. September. Brazil. 1828.
- *tricolor* (three-coloured). Green, white. November. Guayana. 1845.

ZYGOPHYLLUM. Bean-caper. (From *zygos*, a yoke, and *phyllon*, a leaf; leaves in pairs. Nat. ord., *Bean-capers* [Zygophyllaceæ]. Linn., 10-Decandria 1-Monogynia.)

Greenhouse, yellow-flowered evergreens, and from the Cape of Good Hope where not otherwise mentioned. Annual seeds in a hotbed in spring, and then the plants hardened off, and placed in the open border. Perennials, by cuttings of half-ripened shoots in sand, under a bell-glass, in heat; sandy peat and fibry loam, with a little charcoal and freestone.

- Z. album* (white). 2. White. October. Canaries. 1779.
- *atriplicoides* (orach-like). America. 1837.
- Hardy herbaceous.
- *coccineum* (scarlet). 3. Scarlet. Egypt. 1823.
- *cordifolium* (heart-leaved). 6. October. 1774.
- *foetidum* (stinking). 4. June. 1790.
- — *insuave* (unpleasant). 4. July. 1790.
- *maculatum* (spotted). 4. October. 1782.
- *major* (larger). 4. July. Syria. 1596. Hardy herbaceous.
- *microphyllum* (small-leaved). 4. July. 1816.
- *Morgsana* (Morgsana). 3. August. 1732.
- *prostratum* (prostrate). 4. July. 1810.
- *sensitifolium* (stalkless-leaved). 3. July. 1713.
- *simplex* (simple). 4. July. St. Jago. 1825.
- Annual.
- *spathulatum* (spatulate). June. Cape Verd Islands. 1824. Stove herbaceous.
- *spinosum* (spiny). 1. July. 1830.

SYNONYMES.

In the following List the plants will be found in this Dictionary, or in other works, under the names printed in *Italics*. Where the *generic* names are the same in the synonymes, only the first letter is printed; when the *specific* names are the same, they are omitted entirely.

ABE

Abelia serrata, *A. uniflora*. *A. cyanorum*, *A. hispidissima*.
 Acacia ambigua, *A. suaveolens*. *A. linearis*. *A. longissima*. *A. mollissima*, *A. mollis*. *A. strigosa*, *A. ciliata*. *A. Cumanensis*, *Prosopis*. *A. edulis*, *P. dulcis*. *A. falcata*, *P. juliflora*. *A. smilacifolia*, *A. urophylla*. *A. tamariscina*, *Gagnebina*.
 Acanthus Capensis, *Blepharis*.
 Acer ericarpon, *A. dasycarpon*. *A. sem-pervirens*, *A. heterophyllum*. *A. spica-tum*, *A. montanum*. *A. striatum* hybridum, *A. Penusylvanicum*. *A. negundo*, *Negundo fraxinifolium*.
 Achania, *Malvaviscus*.
 Achillea filicifolia, *Eupatorium*. *A. ochroleuca*, *A. pectinata*. *A. sambucifolia*, *Pyrethrum macrophyllum*.
 Achimenes Ghiesbreghtii, *A. heterophylla*.
A. Scheerii, *Sheeria Mexicana*.
 Aebrias mammosa, *Lucuma*. *A. lucuma*, *L. obovata*.
 Achyrantes altissima, *Chamissoa*.
 Acemella, *Wollastonia*. *A. bupthalmoides*, *Heliopsis scabra*.
 Acoidium fuscum, *Trichocentrum*.
 Aconitum altissimum, *A. cynoctonum*. *A. Cammarum*, *A. rostratum pilosiusculum*. *A. inclinatum*, *A. anthoroideum*. *A. laxum*, *A. Tauricum*. *A. napellus* pubescens, *A. Schleicheri*. *A. pallidum*, *A. Nuttallii*. *A. Pyrenaicum*, *A. Lamarckii*. *A. strictum*, *A. Neubergense*.
 Acrophyllum venosum, *A. verticillatum* and *Weinmannia venosa*.
 Acrostichum, *Cyrtogonium*, *Gymnogramma*, *Lomaria*, *Notholaena*, *Olfersia*, *Platy-*

AGA

cerium. *A. lepidopteris*, *Goniophlebium sepultum*. *A. axillare*, *Gymnopteris axillaris*. *A. acuminatum*, *G. nicotianifolia*. *A. lingua*, *Niphobolus*. *A. velleum*, *Notholaena lanuginosa*. *A. sorbifolium*, *Stenochlœna*.
 Actinella lanata, *Eriophyllum caespitosum*.
 Actinophyllum, *Sciodaphyllum*.
 Acunna oblonga, *Bejaria æstuans*.
 Adamsia scilloides, *Puschkinia*. *A. rotundifolia*, *Gemm*. *A. glacialis*, *Sieversia*.
 Adenandra tetragona, *Acmadenia*.
 Adenanthera scandens, *Entada adenanthera*.
 Adenophora liliifolia, *Campanula*.
 Adiantum trigonum, *A. assimile*. *A. paradoxicum*, *Platylolus Brownii*. *A. pteroides*, *Cheilanthes*.
 Adonis miniata, *A. æstivalis*. *A. Mentzelii* and *vernalis*, *A. Apennina*.
 Adysetum, *Glyce*.
 Æginetica capitata, *Lipostoma campanuliflora*.
 Aerides cornutum, *Æ. odoratum*. *A. arachnites*, *Renanthera*.
 Ærobion superbum, *Angræcum*.
 Æschynomene, *Daubenlœnia*. *Æ. papposa*, *Adesmia*. *Æ. aristata*, *Pictetia*. *Æ. platycarpe*, *Glottidium Floridanum*. *Æ. virgata*, *Corsetia*. *Æ. viscidula*, *Æ. subviscosa*. *Æ. Sesban*, *Sesbania Ægyptiaca*. *Æ. cannabina*, *Æ. affinis*.
 Æsculus carnea, *Æ. rubicunda*.
 Afzelia grandis, *Erythrophleum Guineense*.
A. cassioides, *Seymeria tenuifolia*.
 Agapetes setigera and variegata, *Thibaudia*.
 Agarista nerifolia, *Andromeda*.

- Agathis loranthifolia*, *Dammara orientalis*.
Agathosma, *Macrostylis*, *Baryosma*.
Agave spicata, *A. brachystachys*. *A. geminiflora*, *Littæa*.
Ageratum obtusifolium, *A. cæruleum*. *A. Guianense*, *Eupatorium macrophyllum*.
A. cælestinum, *Cælestina micrantha*.
Agrostemma, *Lychnis*. *A. perennans*, *A. decumbens*.
Ajax maximus, *Narcissus*.
Ajuga furcata, *Anisomeles*.
Aletris alba, *A. farinosa*. *A. uvaria*, *Tritonia*.
Aleuritopteris farinosa and *dealbata*, *Cheilanthes farinosa*.
Alisma Damasonium, *Actinocarpus*.
Allionia, *Oxybaphus*.
Allium campestre, *A. confertum*. *A. Baicalense*, spirale, and senescens, *A. glaucum*. *A. paniculatum*, *A. intermedium*.
A. Monspessulanum, *A. litoreum*. *A. scorodoprasmum*, *A. ophioscorodon*. *A. vineale*, *A. Purshii*. *A. tenuifolium*, *A. schenoprasum*. *A. ampeloprasum*, *A. Waldsteinii*.
Alloplectus Schottia and *sparsiflorus*, *A. dichrous*.
Allosorus acrostichoides, *Parkeria*. *A. imbricatus*, *Jamesonia*. *A. Karwinksii*, *Ceratodactylis osmundioides*.
Alnus viridis, *Betula ovata*. *A. Africanus*, *Tritoma uvaria*.
Aloe atro-virens, *Haworthia*. *A. humilis*, *A. acuminata*. *A. mitræformis*, *A. Commelini*. *A. humilis incurva*, *A. incurva*. *A. striata*, *A. paniculata*.
Alpinia bracteata, *A. Roscoeana*. *A. colocasia*, *Colocasia antiquorum*. *A. spiralis*, *Costus*.
Alstonia oleandrifolia, *A. scholaris*.
Alströmeria, *Bomarea*. *A. Hooperi* and *rosea*, *A. Simsii*.
Althæa leucantha, *A. nudiflora*. *A. grandiflora*, *A. rosea biloba*.
Alteranthera axillaris, *A. spinosa*.
Alyssum, *Anodontia*, *Aubrietia*, *Glyce*, *Psilotrichum*, *Vesicaria*. *A. alpestre*, *A. Marschallianum*. *A. Podolicum*, *Schivevreckia*. *A. chefranthifolium*, *Farselia*. *A. linifolius*, *Mentocus*. *A. vesicaria*, *Vesicaria reticulata*.
Amerimnum, *Lonchocarpus*.
Amaryllis, *Ixiolirion*, *Phycella*, *Xephyranthes*. *A. Peruviana*, *Pyrolirion aureum*. *A. gigantea* and *Moluccana*, *Crinum*. *A. longifolia*, *C. Capense*. *A. ornata*, *C. distichum*. *A. Australasia*, *C. flaccidum*. *A. revoluta*, *C. Herberti*. *A. insignis*, *C. insigne*. *A. Zeylanica*, *C. Zeylanicum*. *A. advena*, *Hubranthus hesperius*. *A. intermedia*, *H. intermedius*. *A. curvifolia*, *Nerine*. *A. laticoma*, *Brunsvigia lucida*. *A. orientalis*, *B. multiflora*. *A. purpurea*, *Vallota*.
Ambrosinia ciliata, *Cryptocoryne*.
Amerimnum ebenus, *Brya*.
Amموcharis, *Brunsvigia*.
Amorpha nana, *A. fragrans*. *A. pubescens*, *A. herbacea*.
Amygdalus Persica nectarina, *Persica levis*. *A. Persica*, *P. vulgaris*.
Amyris, *Ikica*. *A. elemifera*, *A. Plumieri*.
A. balsamifera, *A. toxifera*. *A. Zeylanica*, *Balsamodendron*.
Anacardium longifolium and *Cassuvium*, *Semecarpus anacardium*.
Anagallis collina, *A. fruticosa*.
Anaxetum crassifolium, *Drynaria*.
Anchusa angustifolia, *A. leptophylla*. *A. Zeylanica*, *A. tenella*. *A. sempervirens*, *Omphalodes*. *A. lanata*, *Cynoglossum cheirifolium*. *A. tinctoria*, *Lithospermum*.
Andromeda, *Lyonia*. *A. lucida*, *populifolia*, *reticulata*, and *laurina*, *A. acuminata*. *A. crassifolia*, *A. neriifolia*. *A. Walteri*, *A. axillaris longifolia*. *A. spinulosa*, *A. Catesbæi*. *A. nitida lucida*, *A. coriacea*. *A. fastigiata* and *cupressiformis*, *Cassiope fastigiata*. *A. polifolia latifolia*, *A. glaucophylla*. *A. paniculata*, *A. racemosa*. *A. pubescens*, *A. rubiginosa*. *A. coccinea*, *Gaylussacia pseudo-vaccinium*.
Andryala lyrata, *A. argentea*. *A. lunata*, *Hieracium verbascifolium*.
Anemone hepatica, *Hepatica triloba*. *A. Ochotensis*, *A. alba*. *A. fragifera*, *A. Baldensis*. *A. tenella*, *A. Caroliniana*. *A. stellata* and *versicolor*, *A. hortensis*. *A. alpina*, *A. micrantha*. *A. cuneifolia*, *A. parviflora*. *A. hortensis* and *pavonia*, *A. pavonina fulgens*. *A. apiifolia*, *A. sulphurea*. *A. thalictroides*, *Thalictrum anemonoides*.
Angræcum falcatum, *Œceoclades*. *A. superbum*, *A. eburneum*.
Anguloa superba, *Acinetia Humboldtii*.
Anisopetalum Careyana, *Bolbophyllum*.
Anneslea spinosa, *Euryale ferox*.
Anona, *Asimina*. *A. tripetala*, *A. cherimolia*.
Anonyms bracteata, *Zornia tetraphylla*.
Anthemis valentina, *Anacyclus radiatus*.
A. Arabica, *Cladanthus*. *A. saxatilis*, *A. Kitaibelii*.
Anthericum, *Arthropodium*. *A. exuviatum* and *fragrans*, *Albuca*. *A. liliastrium*, *Ozackia*. *A. serotinum*, *Gagea*.
A. annuum, *Bulbine*.
Athyrium Halleri, *Asplenium fontanum*.

- Antholyza Cunonia*, *Anisanthus*. *A. Æthiopica* vitigera, *A. præalta*.
Anthyllis, *Ebenus*. *A. cuneata*, *Lespedeza eriocarpa*. *A. cornicina*, *A. hamosa*. *A. rustica*, *A. vulneraria albiflora*. *A. Italica*, *A. vulneraria hirsutissima*.
Antirrhinum macrocarpum, *Nemesia chamaedrifolia*. *A. fruticans*, *Linaria*. *A. lanigerum*, *L. dealbata*. *A. linarioides*, *L. hians*. *A. spurium*. *L. lanigera*. *A. linaria*, *L. linifolia*. *A. odorum*, *L. Loselii*. *A. strictum*, *L. macroura*.
Apargia cichoracea, *A. aurantiaca*.
Apeiba hispida, *A. Petoumo*. *A. hirsuta*, *A. Tibourbou*.
Apicra pseudo-rigida, *A. rigida*.
Apios frutescens, *Wistaria*.
Apocynum frutescens, *Ichnocarpus*. *A. hastatum*, *Eustegia*.
Aquilaria ovata, *A. Malaccensis*.
Arabis, *Aubrieta*. *A. Caucasica*, *A. albidia*. *A. bellidifolia* and *ciliaris*, *A. pumila*.
Aralia sciadophyllum, *Sciadophyllum Brownii*. *A. hispida*, *A. Muhlenbergiana*. *A. glomerulata*, *Hedera*.
Araucaria excelsa, *Altingia*. *A. Cookii*, *A. columnaris*.
Arbutus, *Arctostaphylus*, *Pernettya*. *A. hybrida*, *A. adrachnoides*.
Angelica officinalis, *A. archangelica*.
Arctotis, *Sphenogyne*. *A. scapigera*, *Arctotheca repens*.
Ardisia crenata, *A. elegans*. *A. crenulata*, *A. lentiginosa*. *A. umbellata*, *A. litoralis*. *A. pyramidalis*, *A. paniculata*.
Arenaria Villarsii, *A. Austriaca*. *A. macrocarpa*, *A. canescens*. *A. Sibirica*, *A. capillaris*. *A. fastigiata*, *A. fasciculata*. *A. liniflora*, *A. Gerardi*. *A. filifolia*, *A. graminifolia*. *A. glaberrima*, *A. graminifolia glaberrima*. *A. androsacea*, *A. otitoides*. *A. cherlerifolia*, *A. rubella*. *A. heteromalla*, *A. setacea*. *A. pungens*, *A. subulata*. *A. viscosa*, *A. tenuifolia viscidula*.
Arethusa pectinata, *Bartholina*.
Argemone intermedia, *A. Barclayana*.
Aristolochia ringens, *A. Braziliensis*. *A. trilobata*, *A. Surinamensis*.
Arnica bellidiastrum, *Bellidiastrum Michelii*. *A. montana*, *A. Helvetica*.
Artabotrys hexapetala, *A. odoratissima*.
Artemisia Caucasica, *A. alpina*. *A. inodora*, *A. Marschalliana*. *A. glacialis*, *A. mutellina*. *A. rupestris*, *A. Norvegica* and *mutellina*. *A. splendens*, *A. peduncularis*.
Arthrophyllum Madagascariense, *Phyllarthron Bojeriana*.
Arum, *Caladium*. *A. xanthorhiza*, *Xanthosoma sagittæfolia*. *A. colocasia*, *Colocasia antiquorum*.
Asclepias, *Cynanchum*. *A. viridis*, *Anonthericæ*. *A. viminalis*, *Sarcostemma Swartzianum*. *A. scandens*, *Dæmia*. *A. tenacissima*, *Gymnema*. *A. arborescens*, *Gomphocarpus*. *A. gigantea*, *Calotropis*. *A. laurifolia*, *A. acuminata*. *A. connivens*, *A. exaltata*. *A. purpurascens*, *A. obtusifolia*. *A. hybrida*, *A. purpurascens*.
Aspalathus arboreus, *Brya ebenus*.
Asperula Calabrica, *Ernodea montana*. *A. repens*, *A. hirsuta*. *A. incana*, *A. tomentosa*.
Asphodelus Altaicus and *Sibiricus*, *Eremurus spectabilis*.
Aspidium, *Asplenium*, *Cyrtomium*, *Lastrea*, *Nephrodium*, *Polytrichum*. *A. Wallichii*, *Oleandra*. *A. truncatulum*, *Didymochlæna*. *A. Barometz*, *Cibotium*. *A. caducum*, *Hemigonium*. *A. trapezoides*, *A. pectinatum*.
Asplenium, *Acropteris*. *A. hemionitis*, *Scolopendrium*. *A. scolopendrium*, *S. officinarum*. *A. sorbifolium*, *Meniscium*. *A. nidus*, *Neottopteris vulgaris*. *A. odontites*, *Cænopteris*. *A. laxum*, *C. appendiculata*. *A. Germanicum*, *A. alternifolium*.
Astelma fruticans, *Helichrysum*.
Aster, *Felicia*. *A. corymbosus*, *cordifolius*, *Eurybia corymbosa*. *A. pulchellus*, *Erigeron*. *A. chrysanthemoides* and *tanacetifolia*, *Machæranthera tanacetifolia*. *A. Chinensis*, *Callistemma hortense*. *A. Indicus*, *C. Indicum*. *A. pumilus*, *A. Altaicus*. *A. Pennsylvanicus*, *A. amplexicaulis*. *A. umbellatus*, *A. amygdalinus*. *A. dracunculoides*. *A. artemisiiflorus*. *A. biennis*, *A. canescens*. *A. Marylandica*, *A. conyzoides*. *A. scoparius*, *A. diffusus*. *A. pubescens*, *A. eminens*. *A. carneus*, *A. fragilis*. *A. glaucus*, *A. lævigatus*. *A. lucidus*, *A. laevis*. *A. leucanthemus*, *A. laxus*. *A. expansus*, *A. luxurians*. *A. ledifolius*, *A. nemoralis*. *A. villosus*, *A. pilosus*. *A. fruticulosus*, *A. pluriflorus*. *A. pini-folius*, *A. polyphyllus*. *A. amœnus*, *A. puniceus*. *A. alpinus* ramosa, *A. ramosus*. *A. glaucus* cyanus, *A. rubricaulis*. *A. virgatus*, *A. salicifolius*. *A. Hungaricus*, *A. salignus*. *A. Virginicus*, *A. simplex*. *A. dentatus* and *ferruginea*, *A. tomentosus*. *A. patulus* and *strictus*, *A. vimineus*.
Astragalus Uralensis, *Oxytropis*. *A. Hab-*

leri, *O. fetida*. *A. montanus*, *O. montana*. *A. Dahuricus*, '*O. prostrata*. *A. leontinus* oroboides, *Phaca oroboides*. *A. carnosus*, *A. caryocarpus*. *A. macrorhizus*, *A. Donianus*. *A. virescens*, *A. falcatus*. *A. malacaphyllus*, *A. galeiformis*. *A. tragacanthoides*, *A. lanigerus*. *A. tenuifolius*, *A. linearifolius*. *A. sinicus*, *A. lotoides*. *A. micranthus*, *A. Nuttallianus*. *A. albidus*, *A. vesicarius*. *A. alopecuroides*, *A. vulpinus*. *Astrantia intermedia*, *A. Caucasica*. *A. helleborifolia* and *heterophylla*, *A. maxima*. *Astrapea mollis*, *Dombeya*. *Ataccia cristata*, *Tacca integrifolia*. *Athanasia lanuginosa*, *A. canescens*. *Atragene Zeylanica*, *Naravelia*. *A. alpina*, *A. Austriaca*. *Avena elatior*, *Arrhenatherum avenaceum*. *A. bulbosa*, *A. bulbosum*. *Azalea procumbens*, *Chamaedon*. *Azima tetracantha*, *Monetia Barlerioides*.

B.

Baccharis nereifolia, *Brachylæna*. *Bactris globosa minor*, *Acrocomia minor*. *Bæckea camphorosma*, *Babingtonia*. *Balsamina hortensis*, *B. impatiens*. *Ballota cinerea*, *Roylea elegans*. *Banksia ledifolia* and *litoralis*, *B. Cunninghamii*. *Banisteria heterophylla* and *fulgens*, *B. splendens*. *B. auriculata*, *Stigmaphyllon auriculatum*. *B. chrysophylla* and *nitida*, *Heteropterys*. *Barleria mitis*, *B. flava*. *Barringtonia acutangula*, *Stravadium acutangulum*. *B. racemosa*, *S. racemosum*. *Bartsia coccinea*, *Euchroma*. *B. pallida*, *Castilleja*. *Baryosma Tongo*, *Dipterix odorata*. *Bartonia decapetala*, *B. ornata*. *Batschia Carolinensis*, *B. Gmelini*. *Bauhinia anguina*, *B. corymbosa*. *B. retusa* and *divaricata*, *B. Lamarckiana*. *Begonia floribunda*, *parvifolia*, and *semperflorens*, *B. Dregii*. *B. pendula* and *repens*, *B. fagifolia*. *B. acida*, *pauciflora*, and *peltata*, *B. peltifolia*. *B. odorata*, *B. sinuata*. *B. maculata*, *B. argyrostigma*. *B. punctata*, *Eupetatum punctatum*. *B. rubra*, *B. coccinea*. *B. Evansiana*, *B. discolor*. *Belantheria lamium*, *Belvisiana*, and *Vogeliana*, *Brillantaisia Owarientis*. *Bellis jaculiflora*, *Cunninghamia Sinensis*.

Berberis Chitria, *B. aristata*. *B. atrovirens*, *B. Wallichiana*. *B. vulgaris* and *Iberica*, *B. Iberica*. *Beschorneria tubiflora*, *Fourcroya*. *Besleria bicolor* and *dichrous*, *Alloplectus dichrous*. *B. melittifolia*, *Episcia melittifolia*. *B. inodora*, *Franciscea calycina*. *B. serrulata*, *Drymonia bicolor*. *Bidens calendulacea*, *Osteospermum calendulaceum*. *B. scandens*, *Salmea*. *B. odorata*, *B. grandiflora*. *B. tripartita*, *B. repens*. *Bigelovia stricta* and *verticillata*, *Borreria*. *B. commuta*, *B. commutata*. *Bignonia articulata*, *Phyllarthron Bojeriana*. *B. cærulea*, *Jacaranda Bahamensis*. *B. comosa*, *Adenocalymna comosum*. *B. heterophylla*, *B. Chirere*. *B. microphylla*, *Catalpa*. *B. linearis*, *Chilopsis*. *B. paniculata*, *Amphilobium paniculatum*. *B. tomentosa*, *Paulownia imperialis*. *B. Capensis*, *pentaphylla*, *radicans*, and *stans*, *Tecoma*. *B. Pandoræ*, *T. australis*. *B. grandiflora* and *Chinensis*, *T. grandiflora*. *B. fraxinifolia*, *Spathodea*. *B. chelonoides*, *S. longiflora*. *B. spathacea*, *S. Rheedii*. *B. quadrilocularis*, *S. Roxburghii*. *B. uncata*, *S. uncala*. *Billardiera fusiformis*, *Sollya angustifolia*. *Billotia flexuosa*, *Leptospermum flexuosum*. *Blæria bracteata*, *Sympieza capitella*. *Blandfordia cordata*, *Galax aphylla*. *Blechnum*, *Woodwardia*. *B. boreale*, *Lomaria spicant*. *B. Canadense*, *B. Braziliense*. *B. stramineum*, *B. striatum*. *B. volubile*, *Salpichlæna volubilis*. *Bletia pallida*, *B. florida*. *B. verecunda* *Shepherdii*, *B. Shepherdii*. *B. Tankervilleæ*, *Phaius grandifolius*. *B. Woodfordii*, *P. maculatus*. *Bocconia cordata*, *Macleaya*. *Bæobotrys Indica* and *pubescens*, *Mesa*. *Bombax pentandrum*, *Eriodendron anfractuosum*. *B. erianthos*, *E. leiantherum*. *B. gossypium* and *grandiflorum*, *Cochlospermum gossypium*. *B. vitifolium*, *C. serratifolium*. *B. quinquatum*, *Ceiba*. *B. heptaphyllum* and *Malabaricum*, *B. septenatum*. *Bonplandia geminiflora*, *Caldasia heterophylla*. *Borago Zeylanicum*, *Trichodesma*. *Borbonia axillaris* and *ericæfolia*, *Priestleya*. *B. cordata*, *Rafnia triflora*. *B. perfoliata*, *Vascou*. *Boronia anemonæfolia*, *B. Frazeri*. *B. ledifolia*, *B. latifolia*. *Bossiaea rufa*, *B. ensata*. *B. lanceolata*,

- B. heterophylla*. *B. lenticularis*, *B. rhombifolia*.
Boutrychium gracilis, *B. dissectum*.
Bouvardia Jacquinii, *B. triphylla*.
Brasenia peltata, *Hydropeltis purpurea*.
Brassica arvensis, *Moricandia*. *B. orientalis*, *Erysimum perfoliatum*.
Brodiaea alliacea and *ixioides*, *Leucocoryne*. *B. grandiflora*, *Hesperoscordum hyacinthinum*.
Bromelia lucida, *Ananassa*. *B. ananas*, *A. sativa*. *B. nudicaulis*, *pyramidalis*, and *zebrina*, *Billbergia*. *B. pallida*, *B. amœna*. *B. melanantha*, *B. clavata*. *B. iridiflora*, *B. iridifolia*.
Brotera ovata, *Pentapetes*.
Broussonetia Plumieri and *tinctoria*, *MacLura*.
Browallia lactea, *B. elongata*.
Brownea speciosa, *B. rosea*.
Brugmansia parviflora and *floribunda*, *Juanulloa parasitica*. *B. suaveolens*, *Datura Gardneri*.
Brunia abrotanoides and *lanuginosa*, *Berzelia*. *B. microphylla*, *Raspailia*. *B. ciliata*, *glutinosa*, and *radiata*, *Staavia*. *B. paleacea* and *phylicoides*, *Berardia*.
Bubroma polybotryum, *Guazuma*. *B. guazuma*, *G. ulmifolia*.
Buceo prolifera, *Agathosma*. *B. crenata*, *Barosma crenulata*.
Buchnera viscosa, *Manulea*.
Bulbocodium trigynum, *Merendera Caucasica*.
Buphane disticha, *Brunsvigia*.
Bupththalmum frutescens, *Diomedea bidentata*. *B. arborescens*, *D. glabrata*. *B. cordifolium*, *Telekia speciosa*. *B. scabrum*, *Heliopsis*. *B. helianthoides*, *H. laevis*. *B. coriaceum*, *B. levigatum*.
Bupleurum junceum, *B. Pollichii*.
Burchellia parviflora, *B. bubalina*.
Burlingtonia amœna, *B. decora*.

C.

- Cacalia pugioniformis*, *C. longifolia*.
Cactus phyllanthus, *C. Hookeri*. *C. elegans*, *C. speciosum* (*Epiphyllum*). *C. flavescens*, *C. straminea*. *C. melocactus*, *C. communis* (*Melocactus*). *C. latispina*, *C. cornigerus* (*Echinocactus*). *C. Pereskia*, *Pereskia aculeata*. *C. portulacæfolia*, *P. portulacæfolia*. *C. aurantiacus*, *Opuntia aurantiaca*. *C. opuntia*, *O. vulgaris*. *C. pendula*, *Rhipsalis Cassutha*. *C. fanalis*, *R. grandiflora*. *C. nobilis*, *C. reductus*. *C. tenuis*, *C. myosurus*.

- Cæsalpinia tinctoria*, *Coulteria*.
Caladium sequinum maculatum, *C. maculatum*. *C. odoratum*, *Colocasia odorata*.
Calceolaria tinctoria, *C. arachnoidea*. *C. diffusa*, *C. bicolor*. *C. floribunda*, *C. connata*. *C. anomala* and *pendula*, *C. crenatiflora*.
Calea scoparia, *Baccharis*.
Calendula Egyptiaca, *C. Sicula*.
Calinea scandens, *Doliocarpus calinea*.
Calla Æthiopica, *Richardia*.
Callicarpa tomentosa, *C. cana*.
Calophyllum Calaba, *C. spurium*.
Caltha ficarioides, *C. Parnassifolia*.
Calycanthus præcox, *Chimonanthus fragrans*.
Calymenia angustifolia, *Oxybaphis angustifolius*.
Calypso Americana, *C. borealis*.
Calyptranthes Jambolana, *Syzygium*. *C. caryophyllifolia*, *S. caryophyllifolium*.
Calyptrion pyrifolium, *Anchista pyrifolia*.
Camellia axillaris, *Polyspora*.
Cameraria lutea, *Tabernaemontana odorata*. See WRIGHTIA.
Campanula communis, *coronopifolia*, *Fischeri*, *intermedia*, *Lamarckiana*, *Pereskiaefolia*, *periploefolia*, *Rabelaisiana*. *stylosa*, and *verticillata*, *Adenophora*. *C. tricuspidata*, *A. denticulata*. *C. coronata*, *A. marsupiflora*. *C. porosa*, *Samolus campanuloides*. *C. fruticosa* and *interrupta*, *Lightfootia subulata*. *C. Moorcroftiana*, *C. colorata*. *C. rupestris*, *C. Biebersteiniana*. *C. capitata*, *C. cichoracea*. *C. neglecta*, *C. crenata*. *C. spatulata*, *C. divergens*. *C. speciosa*, *C. elegans*. *C. diffusa*, *C. fragilis*. *C. betonicaefolia*, *C. gummiifera*. *C. Beldensis*, *C. Lorei*. *C. multiflora*, *C. macrostachya*. *C. Lobelioides*, *C. ramosissima*. *C. gummiifera*, *C. Sarmatica*. *C. planiflora*, *C. versicolor*. *C. flexuosa*. *C. Waldsteiniana*. *C. elongata*, *Wahlenbergia Capensis*. *C. grandiflora*, *W. grandiflora* and *Platycodon grandiflorum*.
Camptosema rubicundum, *Kennedyia rubicunda* and *splendens*.
Campylanthera elegans, *Marianthus cæruleo-punctatus*.
Canna Chinensis, *C. orientalis*. *C. sanguinea*, *C. Warszewiczii*.
Canthium coronatum, *Gardenia dumetorum*. *C. Chinense*, *G. spinosa*.
Cantua ovata, *tomentosa*, and *uniflora*, *C. buxifolia*. *C. aggregata* and *parviflora*, *Gilia*. *C. ligustrifolia*, *Vestia lycioides*.
Capella plumbea, *Phalocallis*.
Capparis acutifolia and *acuminata*, *C.*

- Chinensis*. *C. octandra*, *C. ferruginea*.
C. Fontanesii, *C. ovata*. *C. arborescens*,
C. pulcherrima. *C. uncinata*, *C. torulosa*.
C. trifoliata, *Cratæva Roxburghii*. *C.*
trifoliata, *C. tapioides*.
- Caprifolium pubescens*, *C. hirsutum*. *C.*
Japonicum, *C. Nepalense*.
- Capsicum cerasiforme*, *C. Millerii*.
- Caragana argentea*, *Halimodendron ar-*
genteum.
- Cardamine carnosa*, *Pteroneuron car-*
nosum. *C. Græcum*, *P. Græcum*.
- Cardamomum medium*, *Alpinia media*.
- Carduus cyanoides*, *Serratula cyanoides*.
C. fimbriatus, *S. fimbriatum*. *C. nitidus*,
S. Kitaibelii. *C. Pannonicus* and *serra-*
tuloides, *S. Pannonica*. *C. paniculatus*,
Cirsium paniculatum. *C. polyanthe-*
mus, *C. polyanthemum*. *C. cichoraceus*,
C. cichoraceum.
- Carlina Acharna*, *Cirsium*. *C. bracteata*, *C.*
Sicula. *C. sulphurea*, *C. racemosa*. *C.*
Pyrenaica, *Carduus Carlinoideus*.
- Carolinea insignis*, *Sciadophyllum anoma-*
lum.
- Carpinus ostrya*, *Ostrya vulgaris*.
- Carpodinus*. See CARPODISCUS.
- Carthamus arborescens* and *cynaroides*,
Onobroma. *C. cæruleus*, *O. cæruleum*.
C. glaucus, *O. glaucum*. *C. leuco-*
caulis, *O. leucocaulon*. *C. arboreus*,
Kentrophyllum arborescens. *C. lanatus*,
K. lanatum. *C. Creticus*, *K. Tauricum*.
C. mitissimus, *Carduncellus*. *C. car-*
duncellus, *Carduncellus vulgaris*.
- Casearia decandra*, *C. parviflora*.
- Cassebeera farinosa*, *Cheilanthes*.
- Cassia acuminata*, *O. apoucouita*, *C. flexu-*
osa, *C. Burmanni*. *C. crispa*, *C. fron-*
dosa. *C. grandiflora*, *C. lævigata*. *C.*
orientalis and *acutiloba*, *C. lanceolata*.
C. senna, *C. obovata*. *C. procumbens*,
C. pumila. *C. cernua*, *C. sulcata*. *C.*
arborescens, *C. sulphurea*. *C. multi-*
glandulosa, *C. tomentosa*. *C. dimidiata*,
C. Wallisiana.
- Cassine xylocarpa*, *Elæodendron xylocar-*
pum. *C. lævigata*, *E. tricuspidatus*.
- Cassinia*, *Egiantinus*.
- Cassiope fastigiata*, *Andromeda fastigiata*
and *A. cupressiformis*.
- Castalia edulis*, *Nymphaea*. *C. mystica*,
N. lotus.
- Castilleja coccinea*, *Euchroma*. *C. ses-*
siliflora and *grandiflora*, *E. grandiflora*.
- Catasetum Claveringi*, *C. tridentatum* *Clav-*
eringi. *C. floribundum*, *C. tridentatum*
floribundum.
- Cattleya coccinea*, *Sophronitis grandiflora*.
- Ceanothus cæruleus*, *C. azureus*. *C. Cu-*
bensis, *Colubrina*. *C. Asiaticus*, *C. Asia-*
tica. *C. colubrinus*, *C. ferruginosa*. *C.*
reclinatus, *C. reclinata*. *C. globulosus*,
Pomaderris globulosa. *C. Wendlandia-*
nus, *P. Wendlandiana*.
- Cedronella Canariensis*, *C. triphylla*.
- Celastrus Zeylanicus*, *Ceanothus Zeylani-*
cus. *C. emarginatus*, *C. retusus*. *C.*
octagonus and *verticillatus*, *Maytenus*.
- Celosia lanata*, *Æria*.
- Celsia linearis*, *Alonsoa*. *C. urticifolia*, *A.*
incisifolia.
- Celtis aspera*, *C. occidentalis scabriuscula*.
C. cordifolia, *C. crassifolia*.
- Cenchrus lævigatus*, *Antheophora elegans*.
- Centaurea confusa*, *Leuzea confusa*. *C.*
Altaica, *L. salina*. *C. nitens*, *Calli-*
cephalus. *C. ceratophylla*, *C. arach-*
noidea. *C. Caucasica*, *C. cheiranthi-*
folia. *C. exaltata*, *C. coronopifolia*.
C. argyrophylla, *C. Jacobæifolia*. *C.*
linarifolia, *C. linifolia*. *C. Sibirica*, *C.*
Marschalliana. *C. sulphurea*, *C. neg-*
lecta. *C. leucantha*, *C. ochroleuca*. *C.*
virgata, *C. polymorpha*. *C. rigescens*,
C. rigida. *C. Zamonii*, *C. Romana*. *C.*
Rhapontica, *Rhapontica Pallasii* and
R. scariosa. *C. galactites*, *Galactites*
tomentosa.
- Cephalotaxus coriacea*, *C. drupacea*.
- Cephaelis calycina*, *C. axillaris*.
- Cerasus macrophylla*, *C. duracina mam-*
millaris. *C. salicina*, *C. pygmæa*.
- Ceratostema grandiflorum*, *C. longiflorum*.
- Cerbera fruticosa*, *Kopsia*. *C. Borbonica*,
Ochrosia. *C. laurifolia* and *Odollam*,
Tanghinia. *C. lactaria*, *T. Manghas*.
C. Tanghin, *T. veneniflua*.
- Cereus abnormis*, *cylindricus*, *gibbosus*,
and *imbricatus*, *Cactus* (*Echinocactus*).
C. squamulosus and *elegans*, *Lepismium*
commune. *C. tenuispinus* and *myo-*
surus, *L. myosurus*.
- Ceropegia sagittata*, *Microlooma sagitta-*
tum.
- Certoceras reflexum*, *Centrostemma*.
- Chaixia Myconi*, *Ramondia Pyrenaica*.
- Chamaelaucium plumosum*, *Verticordia*
Fontanesii.
- Chamaerhodes erecta*, *Sibbaldia*.
- Chamaerops acaulis*, *Sabal Adansonii*.
- Chamaerhis alpina*, *Hermidium alpinum*.
- Chardinia orientalis*, *Xeranthemum ori-*
entale.
- Cheilanthes cuneata* and *pteroides*, *Cas-*
sebeera. *C. lentigera* and *vestita*, *No-*
thochlæna. *C. aculeata*, *repens*, and
tenuifolia, *Hypolepis*. *C. hirta*, *rufa*,

- and vestita, *Eriochasma*. *C. dealbata*, *C. farinosa*.
- Cheiranthus dubius, *C. ochroleucus*. *C. Farsetia*, *Farsetia cheiranthoides*. *C. strictus*, *Heliophila cleomoides*. *C. versicolor*, bicolor, and decumbens, *Erysimum*. *C. leptophyllum*, *E. leptophyllum*. *C. alpinus*, *E. canescens*. *C. collinus*, *E. collinum*. *C. firmus*, *E. firmum*. *C. Armeniacus*, *E. Ibericum*. *C. Rhæticus*, *E. Rhaticum*. *C. strigosus*, *E. strigosum*. *C. hieracifolius*, *E. strictum*. *C. lyratus*, *Malcomia lyrata*. *C. maritimus*, *M. maritima*. *C. litoreus*, *M. litorea*.
- Chelidonium Dahuricum, *C. grandiflorum*. *C. diphylum*, *Meconopsis diphylla*. *C. hybridum*, *Romeria hybrida*.
- Chelone cerulea and hirsuta, *Pentstemon angustifolium*. *C. atro-purpurea*, *P. atro-purpureum*. *C. cristata*, *P. eriantherum*. *C. erianthera*, *P. glabrum*. *C. angustifolia*, *P. Kunthii*. *C. elegans*, *P. pulchellum*. *C. rosea* and *angustifolia*, *P. roseum*. *C. major*, *C. Lyoni*.
- Chenopodium cordatus, *Amaranthus*.
- Chilopsis saligna, *C. linearis*.
- Chironia gracilis, *Sabbatia*.
- Chlora dubia, *C. imperfoliata*.
- Chloris curtispindula, *Atheropogon aphe-doides*.
- Chlorozema scandens, *Podolobium*.
- Chrysanthemum Indicum, *C. tripartitum*.
- Chryseis tenuiflora, *Eschscholtzia*.
- Chrysiphiala flava, *Stenomesson aurantiacum*.
- Chrysocoma, *Solidago*. *C. cinerea*, *Ozothamnus cinereus*.
- Cibotium glaucescens and glaucum, *C. Barometz*.
- Cicuta venenata, *Fernia villosa*.
- Cinchona excelsa, *Hymenodictyon excelsum*. *C. thyrsoiflora*, *H. thyrsoiflorum*. *C. gratissima*, *Luculia*.
- Cineraria linifolia, *Agathæa*. *C. ameloides*, *A. celestis*. *C. glauca* and *purpurata*, *Senecio*. *C. præcox*, *Senecio*. *C. cruenta*, *S. cruentus* and *alpinus*. *C. cordifolia*, *S. cordifolius*. *C. alpina*, *S. lyratifolius*.
- Cirsium horridum, *C. Baticum*. *C. salinum*, *Leuzea salina*.
- Cissampelos convolvulacea, *Menispermum fenestratum*.
- Cissus ampelopsis, *Ampelopsis cordata*. *C. quinquefolia*, *A. hederacea*.
- Cistus salvifolius, *C. acutifolius*. *C. la-daniferus* and *stenophyllus*, *C. Cyprus*.
- C. undulatus*, *C. Dunalianus*. *C. villosus* and *virescens*, *C. rotundifolius*. *C. la-daniferus undulatus*, *C. undulatus*.
- Clavija macrophylla, *C. macrocarpa*.
- Claytonia Virginica, *C. acutiflora*. *C. bifida*, *C. Unalaschkensis*.
- Clematis, *Atragene*. *C. calycoma*, *C. Bale-arica*. *C. australis*, *C. coriacea*. *C. fragrans*, *C. flammula rotundifolia*. *C. cir-rhosa*, *C. pedicellata*. *C. cordata*, *C. Sim-sii*. *C. bracteata*, *C. Virginiana bracteata*. *C. cæspitosa* and *flammula*, *C. flammula cæspitosa*. *C. bicolor*, *C. florida Sieboldii*. *C. anemonæflora*, *C. mon-tana grandiflora*. *C. Hendersoni*, *C. Ne-palensis*. *C. tenuifolia* and *Lusitanica*, *C. viticella tenuifolia*. *C. verticillaris*, *Atragene Americana*. *C. alpina*, *A. Austriaca*. *C. Capensis*, *Anemone*.
- Cleome Cheladonii, dodecandra, uni-glandulosa, and viscosa, *Polanisia*. *C. dodecandra Canadensis*, *P. graveolens*. *C. icosandra*, *P. viscosa icosandra*. *C. candelabrum*, pentaphylla, and speci-osa, *Gynandropsis*. *C. triphylla*, *G. triphylla* and *sessiliflora*. *C. orni-thopioides*, *C. Dilleniana*. *C. spinosa*, *C. pungens*. *C. prostrata*, *Rothia tri-foliata*. *C. pinnata*, *Stanleya pinnati-fida*. *C. Capensis*, *Heliophila cleo-moides*.
- Clerodendron ovatum, *C. Coromandelium*.
- Cliftonia ligustrina, *Mylocaryum ligus-trinum*.
- Clitantes humilis, *Coburgia*.
- Clitoria multiflora, *Vilmorina*. *C. Brous-sonetii*, *Cologania*. *C. polyphylla*, *Bar-bieria*.
- Clycina Vincentina, *Chaetocalyx*.
- Cnicus Acarna, cynaroides, and pungens, *Cirsium*. *C. nivalis*, *C. cernuum*. *C. horridus*, *C. Bertolini*. *C. centauroi-des*, *C. cynaroides*. *C. elatior*, *C. elatius*. *C. glaber*, *C. muticum*. *C. orientalis*, *C. orientale*. *C. paludosus*, *C. paludosum*. *C. Salisburgensis*, *C. Salisburgense*. *C. strictus*, *C. strictum*. *C. Paycuarensis*, *C. Paycuarensense*. *C. pinnatifidus*, *C. pinnatifidum*. *C. car-thamoides*, *Leuzea*. *C. Pannonicus*, *Serratula Pannonica*.
- Coccoeypselum buxifolium, *Fernelia buxi-folia*.
- Coccoloba parviflora, *C. uvifera*.
- Cocculus Carolinus, *Wendlandia populi-folia*.
- Cocos aculeata, *Acrocomia*. *C. fusiformis*, *Diplothemium*. *C. arenaria*, *D. litorale*.

- C. comosa*, *C. plumosa*. *C. Maldivica*, *Lodoicea Sechellarum*.
Codonopsis ovata, *Glossocomia*.
Cologyne coronaria, *Trichosma suavis*.
Colchicum versicolor, *Bulbocodium*. *C. Caucasicum*, *Merendera Caucasica*.
Coleus Amboinicus, *C. aromaticus*.
Colletia ferox, *C. horrida*. *C. horrida*, *C. spinosa*. *C. ephedra* and *obcordata*, *Retanilla*.
Collomia lateritia, *C. coccinea*.
Columnnea splendens, *Nematanthus longipes*. *C. grandiflora*, *C. splendens*.
Colutea Pocockii, *C. Haleppica*. *C. frutescens*, *Sutherlandia*. *C. galegifolia*, *Swainsonia*.
Combretum laxum, *C. secundum*. *C. macrophyllum*, *C. latifolium*. *C. Afzelii*, *Poivreia*. *C. barbatum*, *P. barbata*. *C. purpureum*, *P. coccinea*. *C. comosum*, *P. comosa*. *C. decandrum*, *P. decandra*. *C. intermedium*, *P. intermedia*.
Commersonia dasyphylla, *Byttneria*.
Conium arracacha, *Arracacha esculenta*.
Conanthera bifolia, *C. Simsii*. *C. campanulata*, *Cunningia*.
Connarus Africanus, *Omphalobium Africanum*. *C. Asiaticus*, *O. Indicum*.
Conoclinium ianthinum, *Eupatorium*.
Conostylis Americana, *Lophiola aurea*.
Convallaria verticillata, *Polygonatum verticillatum*. *C. polygonatum*, *P. vulgare*. *C. Japonica*, *Ophiopogon Japonicus*.
Convolvulus Cairicus, *Ipomaea Cairica*. *C. fastigiatus*, *I. fastigiata*. *C. panduratus*, *I. pandurata*. *C. pilosus*, *I. pilosa*. *C. umbellatus*, *I. polyanthes*. *C. stipulaceus*, *I. stipulacea*. *C. vitifolius*, *I. vitifolia*. *C. canescens* and *polyanthus*, *Jacquemontia canescens*. *C. pentantha*, *J. violacea*. *C. pseudo-Siculus*, *C. elongatus*. *C. decumbens*, *C. evoluloides*. *C. pudibundus* and *Portoricensis*, *Pharbitis cathartica*. *C. caespitosa*, *Skinneria*. *C. jalapa*, *Batatas jalapa*, *Exogonium purga*, and *Ipomaea jalapa*. *C. macrorhizus*, *Batatas jalapa*. *C. sepium*, *Calystegia*. *C. spithameus*, *C. sylvestris*. *C. stans*, *C. tomentosa*.
Conyza Chilensis, *Erigeron*. *C. ambigua*, *E. linifolius*.
Corbularia conspicua, *Narcissus conspicuus*.
Corechorus Japonicus, *Kerria Japonica*.
Cordia Patagonula, *Patagonula Americana*.
Cordylone alba, *Dracena elliptica*.
Coreopsis alata and *procera*, *Actinomeris*. *C. alternifolia*, *A. squarrosa*. *C. trip-*
- teris*, *Chrysostemma*. *C. heterophylla*, *Ximenesia Cavanillesii* and *Echinacea heterophylla*. *C. coronata*, *Bidens Berteriana*.
Cornus capitata, *Benthamia fragifera*. *C. asperifolia* and *stricta asperifolia*, *C. sericea asperifolia*. *C. oblongifolia*, *C. sericea oblongifolia*.
Cornutia punctata, *Hosta caerulea*.
Corydalis fungosa, *Adlumia cirrhosa*. *C. Canadensis* and *tenuifolia*, *Dielytra*.
Corypha minor, *Sabal Adansoni*. *C. palmata*, *Chamaerops Palmetto*. *C. Taliera*, *Taliera Bengalensis*.
Costus afer hirsutus, *C. maculatus*. *C. speciosus angustifolius*, *C. Nepalensis*.
Cotoneaster denticulata, *Nagelia*.
Cotula quinqueloba, *Lidbeckia lobata*.
Cotyledon caespitosa and *coccinea*, *Echeveria*. *C. calycinum*, *Bryophyllum*. *C. lutea*, *Umbilicus erectus*. *C. umbilicus*, *U. pendulinus*. *C. serrata*, *U. serratus*. *C. spinosa*, *U. spinosus*. *C. purpurea*, *C. curviflora*. *C. papillaris*, *C. decussata*. *C. ramosissima*, *C. ramosa*, *C. mucronata*, *C. undulata*. *C. Hispanica*, *Pistorinia*.
Crassula dichotoma, *retroflexa*, and *gentianoides*, *Grammanthes chloraeflora*. *C. cultrata*, *Globulea*. *C. rotundifolia*, *Kalanchoe*.
Cratægus glauca, *Stranvësia glaucescens*. *C. lobata*, *C. flava lobata*. *C. Oliveriana*, *C. oxycantha Oliveriana*. *C. laciniata*, *C. oxycantha rosea*. *C. edulis*, *C. pyrifolia*. *C. Celsiana*, *C. tanacetifolia Taurica*. *C. apiifolia*, *C. apiifolia minor*. *C. macrantha*, *C. coccinea macrantha*. *C. subvillosa*, *C. coccinea subvillosa*. *C. orientalis*, *C. orientalis sanguinea*. *C. Sibirica* and *monogyna*, *C. oxycantha Sibirica*. *C. edulis*, *C. punctata nigra*. *C. stricta*, *C. punctata nigra stricta*. *C. glandulosa*, *C. coccinea glandulosa*. *C. inlentata*, *C. coccinea indentata*. *C. Indica*, *Raphiolepis*. *C. torminalis*, *Pyrus*. *C. glabra*, *Photinia serrulata*.
Crataeva fragrans and *capparoides*, *Rickia fragrans*.
Crepis barbata and *coronopifolia*, *Tolpis*. *C. filiformis*, *Ethionia*. *C. incana*, *Andryala*.
Crinum superbum, *C. amabile*. *C. campanulatum*, *C. aquaticum*. *C. toxicarium*, *C. Asiaticum*. *C. brevifolium*, *C. bracteatum*. *C. Capense viridiflorum*, *C. crassifolium*. *C. rubrolimbo*, *C. erubescens*. *C. revolutum*, *C. Herberti*.

Crotalaria sericea, *C. Burmanni*. *C. hirta*, *C. Cubensis*. *C. trifoliastrium*, *C. medicaginea*. *C. Chinensis*, *C. paniculata*. *C. lævigata*, *C. Purshii*. *C. stricta* and *anthyllioides*, *C. Roxburghiana*. *C. cærulea*, *C. verrucosa*. *C. opposita*, *Rafnia*. *C. cordifolia*, *Hypocalyptus obcordatus*. *C. amplexicaulis*, *Vascoa amplexicaulis* and *perfoliata*. *C. floribunda* and *obcordata*, *Viborgia obcordata*.
Cruikshanksia cistiflora, *Ledocarpus peduncularis*.
Cryptomeria Japonica pygmæa, *C. Japonica nana*.
Cucifera Thebaica, *Hyphæne coriacea*.
Cucubalus chloræfolius, *Silene perfoliata*.
Cucumis anguineus, *Trichosanthes anguina*.
Cucurbita citrullus, *Cucumis*. *C. lagenaria*, *Lagenaria vulgaris*.
Cunninghamia lanceolata, *C. Sinensis*.
Cupia, *Stylocoryne*.
Cupressus triquetra, *Callitris*. *C. thyoides*, *Chamæcyparissphæroidea*. *C. Japonica*, *Cryptomeria*. *C. glauca*, *C. Lusitanica*.
Cyathea arborea, *C. excelsa*. *C. dentata*, *Aspidium dentatum*.
Cyclamen Clusii, *C. Europæum*. *C. Europæum*, *C. hederifolium*.
Cyclobotbra barbata, *C. lutea*.
Cymation lævigatum, *Lichtensteinia lævigata*.
Cymbidium iridioides, *C. giganteum*. *C. floridum*, *Bletia florida*. *C. hyacinthinum*, *B. hyacinthina*. *C. altum*, *B. verrecunda*. *C. cucullatum*, *Brassavola cucullata*. *C. nodosum*, *B. nodosa*. *C. tripterum*, *Cælia Baueriana*. *C. dependens*, *Cirrheæ Loddigesii*.
Cynanchum bicolor, *Damia*. *C. extensum*, *D. extensa*. *C. discolor*, *Gonolobus*. *C. maritimum*, *G. maritimus*. *C. viminale*, *Sarcostemma*.
Cynoglossum Virginicum, *C. amplexicaule*. *C. hirsuta*, *C. canescens*. *C. scorpioides*, *Omphalodes*. *C. brassicæfolium*, *O. amplexicaulis*. *C. linifolium*, *O. linifolia*. *C. nitida*, *O. nitidum*. *C. omphalodes*, *O. verna*.
Cyperus elegans and *odoratus*, *Papyrus*.
Cypripedium humile, *C. acaule*.
Cyrilla coccinea, *Achimenes*. *C. pulchella*, *Trevirania*.
Cyrtanthus uniflorus, *Gastronema clavatum*.
Cyrtochilum stellatum, *Miltonia stellata*.
Cyrtopodium Woodfordii, *Cyrtopera*.
Cytisus niger, *pinnatus*, and *Wolgarica*, *Calophaca Wolgarica*. *C. pseudo-Cajan*,

Cajanus bicolor. *C. Cajani*, *C. flavus*. *C. argenteus*, *Lotus*. *C. foliolosus*, *Hispanicus*, and *Telonensis*, *Adenocarpus*. *C. complicatus*, *A. intermedius* and *parvifolius*. *C. pauciflorus*, *C. calycinus*. *C. elongatus*, *C. multiflorus*.

D.

Dactylanthus globosa, *Euphorbia*.
Dalbergia arborea, *Pongamia glabra*. *D. diphaca*, *Diphaca Cochinchinensis*. *D. Domingensis*, *Lonchocarpus*.
Dalea Kuhnistera, *Petalostemon corymbosum*.
Dalibarda repens, *D. violæoides*. *D. fragarioides*, *Comaropsis Doniana* and *fragarioides*.
Damasonium stellatum, *Actinocarpus damasonium*.
Dahlia frustanea fulgens, *D. crocata*.
Daphne collina Neapolitana, *D. Neapolitana*. *D. cannabina*, *D. papyracea*. *D. oleæfolia*, *D. sericea*. *D. lagetia*, *Lagetia lintearia*.
Darea appendiculata and *odontites*, *Cænopteris*.
Davallia alata, *Microlepia*. *D. primata* and *flagellifera*, *M. primata*. *D. flaccida*, *M. rhomboidea*. *D. Boryana*, *Odontolomia Boryanum*.
Daviesia glauca, *D. mimosoides*. *D. reticulata*, *Jacksonia*.
Diastella vacciniifolia, *Mimetes*.
Delphinium tridactylum, *D. exaltatum*. *D. hirsutum*, *D. hybridum*. *D. intermedium*, *D. intermedium leptostachyum*. *D. junceum*, *D. peregrinum*. *D. ambiguum*, *D. pubescens*.
Dendrobium cucullatum, *D. Pierardii*. *D. aureum*, *D. heterocarpum*.
Denhamia scandens, *Culcasia*.
Desfontainea splendens, *Hookeri*, and *acutangula*, *D. spinosa*.
Desmanthus plenus, *polyphyllus*, and *punctatus*, *Neptunia plena*.
Desmotrichum cymbidioides, *Dendrobium*.
Dianthus scaber, *D. asper*. *D. glaucophyllus*, *D. Balbisii*. *D. pumilus*, *D. barbatus latifolius*. *D. atro-rubens*, *D. capitatus*. *D. orientalis*, *D. fimbriatus*. *D. neglectus*, *D. glacialis*. *D. furcatus*, *D. Hornemanni*. *D. Willdenovii*, *D. Ibericus* and *Liboschitzianus*. *D. petraeus*, *D. petraeus majoribus*. *D. procumbens*, *D. monadelphus*. *D. pallens*, *D. pallidiflorus*. *D. moschatus* and *dubius*, *D. plumarius*. *D. ochroleucus*, *D. pratensis*. *D. Bisigniani*, *D. rupicola*. *D. virgi-*

- neus, *D. sylvestris*, *D. pungens* and *rupestris*, *D. virgineus*.
Diapensia cuneifolia, *D. barbulate*.
Dicksonia glutinosa, *Sitobium glutinosum*. *D. flaccida*, *S. flaccidum*. *D. pubescens*, *S. punctilobium*. *D. culcita*, *Balanium*. *D. antarctica*, *Cibotium Billardieri*. *D. aculeata*, *Hypolepis*.
Dictyoptera spinosa, *Barleria lupulina*.
Dictamnus albus, *D. fraxinella*.
Didiscus cæruleus, *Trachymene cærulea*.
Didymocarpus Rexii, *Streptocarpus*.
Didymochlæna sinuosa, *D. truncatula*.
Dielytra scandens, *Dactylicapnos thalictrifolia*.
Diervilla Canadensis, *D. lutea*.
Digitalis Canariensis and *scaptrum*, *Iso-plexis*. *D. grandiflora*, *D. ambigua*. *D. parviflora*, *D. lutea*. *D. intermedia*, *D. media*. *D. ambigua*, *D. ochroleuca*. *D. erubescens*, *D. purpurascens*.
Dilatris tinctoria and *Heritiera*, *Lachnanthes tinctoria*.
Dillenia, *Wormia*. *D. scandens*, *Tetracera volubilis*.
Dillwynia pungens, *Eutaxia*.
Dimocarpus Litchi, *Nephelium*. *D. Longan*, *N. Longana*.
Dimorpha grandiflora, *Parivoa*.
Dinebra curtispindula, *Atheropogon aphidoides*.
Diosma, *Audouinia*. *D. alba*, *Coleonema*. *D. latifolia*, *serratifolia*, and *odorata*, *Barosma crenulata*. *D. linifolia*, *B. dioica*. *D. linearis*, *marginata*, and *villosa*, *Adenandra*. *D. ambigua* and *orbicularis*, *Agathosma*. *D. cuspidata*, *Linconia*. *D. deusta*, *L. thymifolia*. *D. ciliata*, *Macrostylis obtusa*.
Dolichos polystachyos, *Phaseolus perennis*. *D. soja*, *Soja hispida*. *D. obtusifolius*, *Canavalia obtusifolia*. *D. roseus*, *C. rosea*. *D. luteolus*, *Vigna glabra*.
Dombeya columnaris, *Araucaria*.
Donia ciliata, *glutinosa*, and *squarrosa*, *Grindelia*.
Doronicum orientale, *D. Caucasicum*. *D. Peruvianum*, *Werneria rigida*. *D. villosum*, *Diplocoma villosa*.
Dorycnium Ibericum, *D. latifolium*. *D. Monspelienae*, *D. suffruticosum*. *D. hirsutum* and *incanum*, *D. tomentosum*.
Draba, *Aubrietia*. *D. præcox*, *Erophila*. *D. verna*, *E. vulgaris*. *D. lutea* and *longipes*, *D. gracilis*. *D. contorta*, *D. incana*. *D. androsacea*, *D. Lapponica* and *Fladnicensis*. *D. hirta*, *D. muri-*
cella, *rupestris*, and *stellata*. *D. aizoides*, *D. brachystemon*. *D. incana*, *D. confusa*. *D. Pyrenaica*, *Petrocallis*.
Dracæna australis, *indivisa*, and *stricta*, *Cordylina*. *D. spicata*, *terniflora*, *Wallichii*, *maculata*, and *Javanica*, *D. elliptica*. *D. marginata*, *D. tessellata*. *D. ensifolia*, *Dianella*.
Dracocephalum grandiflorum, *D. Altaianse*. *D. cordatum*, *Physostegia cordata* and *Cedronella cordata*. *D. denticulatum*, *Physostegia denticulata*. *D. speciosum*, *P. speciosa*. *D. variegatum*, *P. variegata*. *D. Virginianum*, *P. Virginiana*. *D. Mexicanum*, *Cedronella Mexicana*. *D. Canariense*, *C. triphylla*.
Dracontium pertusum, *Calla pertusa*.
Dracophyllum capitatum and *gracile*, *Sphenotoma*.
Drimys Granatenis, *Chilensis*, and *Mexicana*, *D. Winteri*.
Drosera intermedia, *D. longifolia*.
Dryandra falcata, *Hemiclidia Baxteri*.
Dryas octopetala, *D. Drummondii*. *D. integrifolia*, *D. tenella*.
Duranta microphylla, *D. Ellisia*. *D. dentata*, *D. macrocarpa*.
Duvalia. See STAPELIA.
Dyssodia porophylla, *Bæbera incana*.

E.

- Echinocactus obrepandus*, *Echinopsis cristata*. *E. depressus*, *gibbosus*, and *hystrix*, *Cactus* (*Echinocactus*). *E. plateacantha*, *C. cornigerus* (*Echinocactus*). *E. ingens*, *C. visnaga* (*Echinocactus*). *E. recurvus*, *C. nobiles* (*Echinocactus*). *E. polyacantha*, *C. polyacantha* (*Melocactus*).
Echinopsis campylacantha, *Cereus leucanthus*.
Echites, *Aganosma*. *E. caudata*, *Strophanthus dichotomus*. *E. succulenta*, *Pachypodium succulentum*. *E. tuberosa*, *P. tuberosum*. *E. sanguinolenta* and *nutans*, *Hæmadictyon venosum*. *E. suberecta*, *H. suberectum*. *E. crassinoda* and *splendens*, *Dipladenia*.
Echium formosum, *E. grandiflorum*. *E. grandiflorum*, *E. macranthum*. *E. hispidum* and *elegans*, *E. Sibthorpii*.
Elæocarpus lanceolata, *E. grandiflorus*. *E. peduncularis*, *Friesia*.
Elæodendron argania, *Argania sideroxy-lon*.
Elichrysum, *Aphelaxis* and *Astelma*.
Elodea campanulata, *Hypericum Virginicum*.

- Encephalartos, *Zamia*.
 Encyclia patens, *Epidendrum odoratissimum*.
 Epacris rosea, *Lysinema pungens rubrum*.
 Ehippium elongatum, capitatum, and compressum, *Cirrhopetalum*. *E. ciliatum*, *C. Blumei*.
 Epidendrum ellipticum, *E. crassifolium*. *E. ciliare*, *E. cuspidatum*. *E. lineatum*, *E. fragrans*. *E. marginatum*, *E. radiatum*. *E. basilare*, *E. Stamfordianum*. *E. caudatum*, *Brassia caudata*. *E. cucullatum*, *Brassavola cucullata*. *E. nodosum*, *B. nodosa*. *E. tripterum*, *Cælia Baueriana*. *E. subulatum*, *Aerides cylindricum*.
 Epilobium Halleri, *E. Dodonæi*. *E. squamatum*, *E. rosmarinifolium*.
 Epipactis cucullata, *Eriochilus autumnalis*. *E. ensifolia*, pallens, and rubra, *Cephalanthera*.
 Epiphyllum splendidum and Hitcheni, *Cereus splendidus*.
 Epithecia glauca, *Epidendrum glaucum*.
 Eranthemum flavum, *Barleria flava*.
 Eremurus Altaicus, Caucasicus, and Tauricus, *E. spectabilis*.
 Erica quadriflora, *E. Bergiana*. *E. eriocephala*, *E. canescens*. *E. mirabilis*, *E. Daphnoides*. *E. rupestris*, *E. depressa*. *E. octophylla*, *E. fascicularis*. *E. Walkeriana*, *E. fastigiata*. *E. Linneana* perspicua, *E. Linneana*. *E. Patersoniana* coccinea, *E. Patersoniana*. *E. peduncularis*, *E. rubens*. *E. tricolor*, *E. Sprengelii*. *E. Cassonii*, *E. varia*. *E. Dabæci*, *Menziesia polifolia*.
 Erigeron serpentarius, *E. bellidifolius*. *E. pubescens*, *Heterochaeta*. *E. glutinosus*, *Inula saxatilis*. *E. viscosus*, *I. viscosa*.
 Erinus fragrans, *Lyperia*.
 Eriocaulia major, *Actinotus helianthi*.
 Eriodendron Caribæum, *E. anfractuosum Caribæum*.
 Eriogonium flavum, *E. sericeum*.
 Eriopappus paniculatus, *Eupatorium paniculatum*.
 Eriospermum latifolium, *E. Bellendeni*.
 Eriostemon salsoloides, *Philotheca australis*.
 Erodium alpinum, *E. caucalisolium*. *E. graveolens*, *E. glandulosum*. *E. chamaedryoides*, *E. Reichardi*. *E. multicaule* and *Ruthenicum*, *E. serotinum*. *E. multifidum*, *E. Stephanianum*.
 Eryum volubilis, *Galactia glabella*.
 Erysimum diffusum, *E. Andrzejoskianum*. *E. grandiflorum*, *E. longifolium*. *E. præcox*, *Barbarea*. *E. barbarea*, *B. vulgaris*.
 Erythronium Americanum, *E. lanceolatum*.
 Escallonia bifida, *E. Montevidentis*.
 Eucalyptus cordata, *E. pulverulenta*.
 Eugenia Bartonoides, *Microsperma*.
 Eugenia australis, macrophylla, acuminata, macrocarpa, ternifolia, amplexicaulis, and aquea, *Jambosa*. *E. Malaccensis*, *J. purpurea*. *E. Jambos*, *J. vulgaris*. *E. myrtifolia*, *J. australis*. *E. Zeylanica*, *Syzygium*. *E. acutangula*, *Stravadium acutangulum*. *E. racemosum*, *S. racemosum*. *E. orbiculata*, *Myrtus*.
 Eulophia crinita, *Zygopetalum crinitum* and *Mackayi*. *E. gracilis*, *Galeandra*.
 Euosma albiflora, *Logania floribunda*.
 Eupatorium molle, *E. macrophyllum*. *E. veronicæfolium*, *Bulbostylis veronicaefolia*. *E. squarrosus*, *B. Cavanillesii*. *E. cæruleum*, *Cælestina cærulea*. *E. micranthum*, *C. micrantha*. *E. ferrugineum*, *Ozothamnus ferrugineus*. *E. rosmarinifolium*, *O. rosmarinifolius*.
 Euphorbia bupleuroides, *E. Atlantica*. *E. virgata*, *E. Lamarckii*. *E. Jacquini* flora, *E. prunifolia*.
 Euphrasia Salisburgensis, *E. alpina*.
 Euryale Amazonicum, *Victoria regia*.
 Eurybia Gunniana, *Olearia*.
 Eustoma Russellianus, *Lisyanthus*. *E. silenifolia*, *L. glaucifolius*.
 Euthamia, *Solidago*.
 Eutoca parviflora, *Nemophila*.
 Evodia triphylla, *Xanthoxylon triphyllum*.
 Evolvulus sericeus, *E. incanum*.
 Evosmus albidus, *Laurus Borbonia*.
 Exacum hyssopifolium and viscosum, *Hippion*. *E. verticillatum*, *Coutouba* and *Hippion*. *E. ramosum*, *C. ramosa*. *E. spicatum*, *C. spicata*. *E. vaginale*, *Logania latifolia*.
 F.
 Fadyema, *Aspidium*.
 Fagara Budrunge, pterota, and tragodes, *Xanthoxylon*. *F. piperita*, *X. piperitum*. *F. triphylla*, *Evodia*.
 Fagus castanea, *Castanea vesca*.
 Farsetia, *Aubrietia*. *F. incana* and mutabilis, *Berteroa*. *F. Aegyptiaca*, *F. cheiranthoides*.
 Fedia rupestris, *Patrinia*.
 Ferdinandeia superba, *Crescentia macrophylla*.

Ferraria pavonia, *Tigridia*. *F. tigridia*, *T. pavonia*. *F. tricuspis*, *Vicusseuxia*. *Ferraria viridiflora*, *Ferraria antherosa*. *Ferreola buxifolia*, *Maba*. *Ferula nodiflora*, *F. ferulago*. *F. asafœtida*, *F. Persica*. *Ficaria ranunculoides*, *F. verna*. *Ficus scabra*, *F. oppositifolia*. *F. nitida*, *F. Hookeri*. *F. venosa* and *leucosticha*, *F. leucotoma*. *Fothergilla* *Gardeni*, *F. alnifolia acuta*. *F. major*, *F. alnifolia obtusa*. *F. mirabilis*, *Chitonia Fothergilla*. *Fragaria grandiflora*, *F. calycina*. *Franciscea calycina* and *confertiflora*, *Brunsfelsia calycina*. *F. Hopeana*, *B. uniflora*. *F. capitata*, *B. hydrangeæformis*. *F. Pohliana*, *B. acuminata*. *Frankenia hispida*, *F. hirsuta*. *F. hirsuta*, *F. intermedia*. *Frasera Walteri*, *F. Carolinensis*. *Fraxinus discolor*, *F. euptera*. *F. crispa*, *F. excelsior*. *F. simplicifolia*, *F. heterophylla*. *F. nigra*, *F. pubescens*. *F. striata*, *Ornus*. *Fritillaria latifolia*, *F. nervosa*. *F. Pyrenaica*, *F. nigra*. *F. meleagris* and *alba*, *F. præcox*. *F. racemosa*, *F. Pyrenaica* and *tenella*. *F. minor*, *F. nervosa* and *tenella*. *F. Thomsonia*, *Lilium roseum*. *F. purpurea*, *Cyclobotrya*. *F. barbata*, *C. alba*. *Fuchsia decussata*, *F. gracilis*. *Fumaria capreolata*, *F. media*. *F. cucullaria* and *eximia*, *Dielytra*. *F. pauciflora*, *Corydalis*. *F. solida*, *C. bulbosa*. *F. fabacea*, *C. Caucasica*. *F. semper-virens*, *C. glauca*. *F. cava albidiflora*, *C. tuberosa albidiflora*.

G.

Gagea lutea, *G. fascicularis*. *Gaillardia bicolor Drummondii*, *G. picta*. *Galactia pinnata*, *Barbieria polyphylla*. *Galaxia plicata*, *Peyrouisia fasciculata*. *Galega filiformis* and *longifolia*, *Sweetia*. *G. biflora*, *Caribæa*, *grandiflora*, *muricata*, and *ochroleuca*, *Tephrosia*. *Galium reflexum*, *G. Tauricum*. *G. glaucum*, *Asperula galioides*. *Galinsogea discolor*, *Verbesina atriplicifolia*. *Gardenia esculenta*, *Genipa*. *G. tubiflora*, *Oxyanthus tubiflorus*. *Gardoaia betonoides*, *Cedronella Mexicana*. *Gasteria longifolia*, *G. angulata*. *G. nigricans*, *G. decipiens*.

Gastonia palmata, *Gilibertia*. *Gaultheria tomentosa*, *G. ferruginea*. *G. serpyllifolia*, *Phalerocarpus*. *Gela lanceolata* and *oblongifolia*, *Ximenia*. *Geledupa uliginosa*, *Pongamia*. *Genista viscosa*, *Adenocarpus frankenioides*. *G. prostrata*, *G. procumbens*. *G. Jamiensis*, *G. scariosa*. *Gentiana quinqueflora*, *G. aurea*. *G. ciliata*, *G. barbata* and *fimbriata*. *G. fimbriata*, *G. crinita*. *G. amarelloides*, *G. Pyrenaica*. *G. rotata*, *Pleurogyne*. *G. verticillata*, *Coutouba*. *Geoffroya inermis* and *racemosa*, *Andira*. *Georgina pinnata*, *Dahlia superflua*. *Geranium Grenvillea*, *Pelargonium conspicuum*. *G. capitatum*, *P. graveolens variegatum*. *G. stenopetalum*, *P. leptopetalum*. *G. minutum* and *album*, *P. oxyphyllum*. *G. spinosum*, *Sarcocaulon Burmanni*. *G. varium*, *G. cinereum*. *G. albanum*, *G. cristatum*. *G. prostratum*, *G. Lancastriense*. *G. Londei*, *G. longipes*. *G. Pyrenaicum nemorosum*, *G. nemorosum*. *G. Reichardi*, *Erodium*. *Gerardia Afzelia*, *Seymeria tenuifolia*. *Gesneria pendulina*, *G. aggregata*. *G. scabra*, *Conradia*. *G. ventricosa*, *C. longiflora*. *G. odorata*, *Coleus aromaticus*. *G. Regeliana*, *Scioducalyx Warzewiczii*. *Geum Canadense*, *G. album*. *G. coccineum*, *G. Atlanticum*. *G. sylvaticum*, *G. Chilense*. *G. inclinatum*, *G. Pyrenaicum*. *G. potentilloides*, *Coluria*. *G. Peckii* and *triflora*, *Sieversia*. *Ghinia mutica*, *Tamonea*. *G. spinosa*, *T. Curassavica*. *Gilia pulchella*, *G. aggregata* and *Ipomopsis elegans*. *Githago Nicænsis*, *Lychnis*. *Gladiolus*, *Anisanthus*. *G. nanus*, *Babiana nana*. *G. bicolor*, *Synnotia*. *G. galeatus*, *S. galeata*. *Glaucium luteum*, *G. flavum*. *G. corniculatum*, *G. phæniceum*. *Gleditschia lævis*, *G. triacanthos inermis*. *Globba Hura*, *G. racemosa*. *Globularia vulgaris*, *G. linifolia*. *G. salicina*, *G. longifolia*. *Glomerata petraea*, *Campanula Nicænsis*. *G. Dahurica*, *C. speciosa*. *Gloriosa simplex*, *G. Nepalensis*. *Glossanthus Notoniana*, *Malabarica*, and *Zeylanica*, *Wulfeniana Notoniana*. *Glycine*, *Wistaria*. *G. monoica*, *Amphicarpa*. *G. filosa* and *sarmentosa*, *A. sarmentosa*. *G. punctata*, *Poiretia*.

- scandens*. *G. apios*, *Apios tuberosa*. *G. humifusa*, *Rothia trifoliata*. *G. sagittata*, *Rudolphia dubia*. *G. lignosa*, *Sweetia*. *G. bituminosa*, *Fagelia*. *G. Vincentina*, *Chaetocalyx*.
Glycyrrhiza aspera and *hispida*, *G. asperima*.
Gnaphalium, *Astelma*. *G. alpinum*, *Antennaria*. *G. acuminatum*, angustifolium, apiculatum, arboreum, cephalotes, congestum, conicum, crassifolium, crispum, cymosum, dasyanthum, diosmæfolium, divaricatum, ericoides, fruticans, helianthemifolium, lasiocaulon, odoratissimum, orientale, patulum, rutilans, and *Stæchas*, *Helichrysum*. *G. arenarium*, *H. affine*. *G. grandiflorum*, *H. grandiflorum* and *fruticans*. *G. divergens*, *Metalsia*. *G. fastigiatum*, *M. fastigiata*. *G. leontopodium*, *Leontopodium Helveticum*. *G. coronatum*, *Petalacte coronata*.
Gnidia ucerosa, *G. juniperifolia*. *G. filamentosa*, *Lachnæa buxifolia*.
Gomezia recurva, *Rodriguezia*.
Gompholobium fimbriatum, *G. barbigerum* and *latifolium*. *G. Celsianum*, *Platychilum*. *G. minus*, *Burtonia minor*.
Gomphostylis candida, *Cælogyne maculata*.
Gongora macrantha and *speciosa*, *Coryanthes*. *G. viridi-purpurea*, *Cirrheæ*.
Goniopteris canescens, *Nephrodium Blumei*.
Goniostemon. See STAFELIA.
Gonolobus hirsutus, *G. Carolinensis*. *G. viridiflorus*, *G. Nuttallianus*.
Goodenia ramosissima, *Scavola hispida*. *G. albida*, *S. microcarpa*. *G. calendulacea*, *S. suaveolens*.
Gorteria rigens, *Gazania*.
Grammitis flavescens and *Hamiltoni*, *Seligeria*. *G. decurrens*, *S. pothifolia*. *G. elongata* and *lanceolata*, *Phlebodium elongatum*. *G. furcata*, *Monogramma trichioidea* and *furcata*. *G. linearis*, *Pleurogramma*. *G. heterophylla* and *serrulata*, *Xiphopteris*.
Gratiola veronicaefolia, *Bonnaya*.
Grevillea blechnifolia, *G. Caleyi*. *G. concinna*, *G. planifolia*.
Grindelia angustifolia, *G. Duvalii*. *G. Sibirica*, *Aster incisus*.
Guarea trichilioides, *G. grandiflora*.
Guatteria lucida, *Stenostomum lucidum*.
Guettardia coccinea, *Isertia*.
Gymnadenia angustifolia, *Orchis Iberica*.
Gymnogramma asplenioides and *polypodioides*, *Leptogramma*. *G. villosa*, *L.*
villosum. *G. sinuata*, *Nothochlæna*. *G. canescens*, *Nephrodium Blumei*.
Gypsophila dianthoides and *stricta*, *Tunica*. *G. scorzonæifolia*, *G. sabulosa*.
Gyronia Virginica, *Medeola*.
H.
Habenaria ciliaris, *cristata*, *dilatata*, *fimbriata*, *herbiola*, *hyperborea*, *incisa*, *psychodes*, and *lacera*, *Platanthera*. *H. gigantea*, *P. Susannæ*. *H. blephariglottis*, *P. holopetala*. *H. orbiculata*, *P. Hookeri*. *H. spectabilis*, *Orchis*.
Habrothamnus cyaneus, *Ischroma tubulosa*.
Hæmanthus ciliaris, *Brunsvigia*. *H. toxicarius*, *B. toxicaria*.
Hamiltonia fruticosa, *Leptodermis lanceolata*.
Harina densiflora, *Wallichia*.
Haronga paniculata, *H. Madagascariensis*.
Harrachia speciosa, *Crossandra undulatifolia*.
Hastingsia scandens, *Holmskioldia*. *H. coccinea*, *H. sanguinea*.
Haworthia concava, *H. cymbiformis*. *H. rigida*, *H. expansa*. *H. fasciculata*, *H. Reinwarti*.
Hebeclinium ianthinum, *Eupatorium*.
Hebenstreitia aurea, *H. integrifolia*.
Hedera tulipiferum, *Genetyllis tulipifera*.
Hedera, *Aralia*.
Hedychium angustifolium, *H. aurantiacum* and *coccineum*.
Hedyotis campanulæiflora, *Lipostoma*.
Hedysarum Sibiricum, *H. alpinum*. *H. alpinum*, *H. alpinum pedicelare*. *H. obscurum Altaicum*, *H. brachyseumum*. *H. humile*, *H. candidum humile*. *H. tuberosum*, *Pueraria tuberosa*. *H. saxatile*, *Onobrychis saxatilis*. *H. biarticulatum* and *elegans*, *Dicerma*. *H. volubile*, *Galactia mollis*. *H. pseudoalhari*, *Alhagi camelorum*. *H. alhagi manna Hebraica*, *A. Maurorum*. *H. tetraphyllum*, *Zornia Capensis* and *tetraphylla*. *H. muricatum*, *Adesmia muricata*. See URARIA.
Heintzia tigrina, *Besleria*.
Helenium Douglasii, *Monolopia major*.
Helianthemum roseum, *H. canescens*. *H. sampsucifolium*, *H. oeymoides*.
Helianthus pubescens, *H. Hookeri*. *H. asper*, *H. petiolaris*. *H. dentatus*, *Viguiera dentata*.
Heliconia buccinata, *H. Indica*. *H. psittacorum*, *H. Swartziana*.

- Helicteres apetala*, *Sterculia helicteres*.
Heliophila pinnata, *H. pendula* and *trifida*. *H. integrifolia*, *H. pilosa*.
Heliotropium grandiflorum, *H. corymbosum*. *H. Indicum*, *Tiaridium*. *H. gnaphalodes*, *Tournefortia*.
Helleborus trifolius, *H. lividus integrilobus* and *Coptis trifoliata*. *H. hyemalis*, *Eranthis*.
Helonias latifolia, *H. bullata*. *H. læta*, *H. erythrosperma*. *H. asphodeloides* and *tenax*, *Xerophyllum*. *H. graminea*, *X. gramineum*. *H. bracteata*, *Zygadenus bracteatus*. *H. glaberrima*, *Z. comutatus*. *H. Virginica*, *Z. Virginicum*.
Hemerocallis lanceifolia, *Funkia*. *H. cærulea*, *F. ovata*. *H. Japonica*, *F. subcordata*.
Hemimeris urticæfolia, *Alonsoa incisifolia*. *H. coccinea*, *A. linearis*.
Hemionitis pedata, *rufa*, and *tartarea*, *Gymnogramma*. *H. pothifolia*, *Selliguea*. *H. prolifera*, *Meniscium proliferum*. *H. lanceolata*, *Antrophyum lanceolatum*. *H. plantaginea*, *Drynaria hemionitidea*. *H. esculenta*, *Diplazium esculentum*. *H. grandifolia*, *D. grandifolium*.
Henckelia crinita, *Didymocarpus crinitus*.
Heracantha Taurica, *Kentrophyllum Tauricum*.
Hermannia latifolia, *H. micans*.
Hesperis Sibirica, *H. matronalis Sibirica*.
H. inodora, *H. matronalis sylvestris*. *H. bituminosa*, *H. runcinata bituminosa*. *H. verna*, *Arabis*. *H. litorea*, *Africana*, and *arenaria*, *Malcolmia*.
Hexacentris lutea, *H. Mysorensis*.
Hibbertia corifolia, *H. pedunculata*.
Hibiscus racemosus, *H. cancellatus*. *H. digitatus*, *H. digitatus Kerianus*. *H. ficulneus*, *H. diversifolius*. *H. grandiflorus*, *H. heterophyllus*. *H. aculeatus*, *H. scaber*. *H. populneus*, *Thespesia populnea*. *H. Patersonii*, *Lagunaria*. *H. lilacinus*, *L. lilacina*.
Hieracium fruticosum, *Æthionia fruticosa*. *H. terbasifolium*, *H. anchusæfolium*. *H. prenanthoides*, *H. denticulatum*. *H. collinum*, *H. flagellare*. *H. collinum cymosum*, *H. Gocknati*. *H. montanum*, *H. incarnatum*. *H. integrifolium*, *H. succisæfolium*.
Hippocrepis comosa, *H. Helvetica*.
Hippophae argentea and *Canadensis*, *Shepherdia*.
Hiptage obtusifolia, *Gærtnera*. *H. mandablota*, *G. racemosa*.
Hohenbergia strobilacea, *Acanthostachys*.
Holeus, *Arrhenatherum*.
Hookeria coronaria, *Brodiaea grandiflora*.
Hopkirkia scandens, *Salmea*.
Horminum caulescens, *Lepechinia spicata*. *H. Pyrenaicum*, *Melissa Pyrenaica*.
Hornemannia ovata, *Vandellia crustacea*. *H. viscosa*, *V. hirsuta*.
Hortensia opuloides, *Hydrangea hortensis*.
Houstonia coccinea, *Bouvardia triphylla*.
Hovea lanigera, *H. pannosa*.
Hovenia acerba, *H. dulcis*. *H. dulcis*, *H. inæqualis*.
Hoya lanceolata and *pallida*, *H. parasitica*. *H. coriacea*, *Centrostemma reflexum*.
Huttia elegans, *Calceolaria cyanea*.
Hyacinthus moschatus, *Muscari moschatum*. *H. Romanus*, *Bellevalia operculata*.
Hydrangea radiata, *H. nivea*.
Hydrocera. See TYTONIA.
Hydrolea Caroliniana, *H. quadrivalvis*.
Hydrophyllum Magellanicum, *Phacelia circinata*. *H. appendiculatum*, *Nemophila paniculata*.
Hymenocallis patens, *H. Caymanensis*. *H. alatum*, *Trichomanes brevisetum*.
Hymenolepis ophioglossoides, *Gymnopteris*.
Hyoscyamus scopolia, *Scopolia Carniolica*.
Hyperanthera moringa, *Moringa pterygosperma*.
Hypericum, *Vismia*. *A. alternifolium*, *Reaumuria hypericoides*. *H. monogynum*, *H. Chinense*. *H. Kohlhanum*, *H. elegans*. *H. aspalathoides*, *H. fasciculatum*. *H. androsæmum*, *Androsæmum officinale*.
Hypocyrtia discolor, *Alloplectus dichrous*.
Hyssopus anisatus, *Stachys faniculum* and *Lophanthus anisatus*. *H. orientalis*, *H. officinalis angustifolius*. *H. Schleicheri*, *H. officinalis canescens*. *H. nepetoides* and *scrophularioides*, *Lophanthus*. *H. lophanthus*, *L. urticæfolius*.

I.

- Iberis cepæfolia*, *I. Tenoreana*. *I. rotundifolia* and *stylosa*, *Hutchinsia*.
Icaorea Guianensis, *Ardisia acuminata*.
Ilex nata, *I. recurva*. *I. Japonica*, *Berberis Bealei*. *I. myrsinitis*, *Myginda myrtifolia*. *I. Canadensis*, *Nemopantes Canadensis* and *Prinos lucidus*. *I. crocea*, *Eleodendron croceum*. *I. skimmia*, *Skimmia Japonica*. *I. prinoides*, *Prinos deciduus*.

Imatophyllum Aitoni, *Clivia nobilis*.

Impatiens biglandulosa, *I. Hookeriana*.

I. balsamina, *I. hortensis*. *I. cornigera*, *I. cornuta*. *I. biflora*, *I. fulva*. *I. natans*, *Tytonia*.

Incarvillea grandiflora, *Tecoma*. *I. tomentosa*, *Bignonia*.

Indigofera hirsuta, *I. lateritia*. *I. angulata*, *I. sylvatica*. *I. cærulea*, *I. tinctoria*. *I. stricta*, *Tephrosia*.

Inga marginata, *I. Burgoni*. *I. Afzeloides*, *I. hymenoides*. *I. Harrisii*, *Cullianandra*. *I. biglobosa*, *Parkia Africana*.

Inula montana, *I. calycina*. *I. thapsoides*, *I. verbascifolia*. *I. scabra*, *Heterotheca*.

Ionidium longifolium, *Noisetia longifolia*.

Ipomœa angustifolia and denticulata, *I. filicaulis*. *I. rubro-cærulea*, *I. Hookeri*.

I. Michauxii, *I. macrorrhiza rubra*. *I. maritima*, *I. pes capræ*. *I. palmata*, *I. Cairica*. *I. speciosa*, *Argyreia*. *I. purga* and *Schiediana*, *Exogonium purga*.

I. filiformis, *E. filiforme*. *I. repanda*, *E. repandum*. *I. Bignonioides*, *Bona-riensis*, *Cavanillesii*, *glaucofolia*, *heterophylla*, *pentaphylla*, *Senegalensis*, *ternata*, *venosa*, and *Willdenovii*, *Batatas*.

I. batatas, *B. edulis*. *I. erioperma*, *gossypifolia*, and *insignis*, *B. paniculata*. *I. jalapa*, *B. julapa* and *Exogonium purga*. *I. coccinea*, *digitata*, *hederifolia*, *longiflora*, *luteola*, *phœnicea*, *sanguinea*, and *triloba*, *Quamoclit*. *I. quamoclit*, *Q. vulgaris*.

I. Gangetica, *Rivea tiliæfolia*. *I. punctata*, *scabra*, *varia*, *barbata*, *barbigera*, *cærulescens*, *cuspidata*, *Dillenii*, *hederacea*, and *hispida*, *Pharbitis*. *I. nil* and *cærulea*, *P. nil*. *I. cathartica* and *pudibunda*, *P. cathartica*.

Ipomopsis elegans, *Gilia aggregata*. *I. inconspicua*, *G. parviflora*.

Iris bicolor, *Moræa*. *I. moræoides*, *M. iridioides*. *I. villosa* and *tricuspis*, *Vieusseuxia*. *I. pavonia*, *V. glaucopsis* and *pavonina*. *I. tripetala*, *V. tripetaloides*, *I. Hookeri*, and *I. tridentata*. *I. gracilis*, *I. Boltoniana*. *I. spatulata*, *I. desertorum*. *I. Nepalensis*, *I. Humei*. *I. paradoxa*, *I. Iberica*. *I. stenogyna*, *I. ochroleuca*. *I. aphylla*, *I. Swertii*. *I. pumila*, *I. violacea*.

Iroucana Guianensis, *Casearia ramiflora*.

Ismene Knightii, *Hymenocallis rotata*.

Isotoma axillaris, *Lobelia senecioides*.

Ixia anemoniflora, *Sparaxis*. *I. bicolor*, *Synnotia*. *I. angusta*, *Hesperantha*. *I.*

purpurascens, *Trichonema*. *I. cælestina*, *T. cælestinum*. *I. quadrangula*, *T. quadrangulum*. *I. ramiflora*, *T. ramiflorum*. *I. stricta*, *Babiana angustifolia*. *I. villosa*, *B. obtusifolia*.

Ixora Pavetta, *I. arborea*. *I. alba*, *I. blanda*. *I. longifolia*, *I. fulgens*. *I. coccinea* and *flammea*, *I. stricta*. *I. fasciculata* and *spinosa*, *Chomelia*. *I. paniculata*, *Pavetta Indica*.

J.

Jacaranda alba and echinata, *Bignonia*. *J. tomentosa*, *B. mollis*. *J. rhombifolia*, *J. filicifolia*. *J. ovalifolia*, *J. mimosifolia*.

Jacquemontia violacea, *J. canescens*. *J. pentantha*, *J. violacea*.

Jasminum Wallichianum, *J. pubigerum*. *J. flexile*, *J. tortuosum*.

Jatropha Læfingii and Manihot, *Janipha*. *J. elastica*, *Siphonia Calucha*.

Jehlia fuchsoides, *Lopezia macrophylla*.

Jonesia pinnata, *J. Asoca*.

Josepha angusta, *Bugainvillea spectabilis*. *Jossinia orbiculata*, *Myrtus*.

Juglans heterophylla and filicifolia, *J. regia laciniata*. *J. amara*, *compressa*, *obcordata*, *porcina*, and *sulcata*, *Carya*.

J. squamosa and *alba*, *C. alba*. *J. angustifolia* and *olivæformis*, *C. olivæformis*.

Juniperus Canadensis, *J. communis Canadensis*. *J. nana*, *J. communis nana*. *J. Suecica*, *J. communis Suecica*. *J. alpina*, *J. sabina alpina*. *J. prostrata* and *repens*, *J. sabina prostrata*. *J. tamariscifolia*, *J. sabina tamariscifolia*. *J. Caroliniana*, *J. Virginiana*. *J. vulgaris* fruticosa, *J. communis vulgaris*. *J. communis erecta*, *J. communis vulgaris*. *J. Lusitanica*, *J. sabina cupressifolia*. *J. elata*, *Dacrydium*.

Justicia flavicomma, *J. calytricha*. *J. oblongata*, *J. nodosa*. *J. tinctoria*, *J. Roxburghiana*. *J. pulcherrima*, *Aphelandra cristata*. *J. Gangetica*, *Asystasia Corcomandeliana*. *J. picta alba*, *Graptophyllum hortense album*. *J. flava*, *Barleria*.

J. guttata, *Phlogacanthus guttatus*. *J. thyrsiflora*, *P. thyrsiflorus*. *J. glabra*, *Rhapidospora*.

K.

Kadsura propinqua, *Sphaerostema propinquum*.

Kaulfussia ciliata, *Felicia tenella*.

- Kennedy cordata*, *Comptoniana*, *macrophylla*, *monophylla*, and *ovata*, *Hardenbergia*. *K. latifolia*, *K. ovata*. *K. glabrata* and *pannosa*, *Zichya*. *K. dilatata*, *Z. sericea* and *K. inophylla*.
Kleinia tomentosa, *Cacalia Hawthorii*.
Klugia Notoniana, *Wulfenia*.
Kniphovia aloides and *uvaria*, *Tritoma uvaria*.
Knoxia corymbosa, *K. Sumatrensis*. *K. umbellata*, *K. teres*.
Kodda-pail, *Pistia stratiotes*.
- L.
- Lacathea florida*, *Gordonia pubescens*.
Lafoensia Vandelliana, *L. microphylla*.
Lamarekia dentata, *Elæodendron australe*.
Lanaria plumosa, *Argolasia*.
Langeria hirsuta and *odorata*, *Guettardia*.
L. lucida, *G. lucida* and *Stenostomum lucidum*.
Lasiopetalum purpureum, *Thomasia purpurea*. *L. triphyllum*, *T. triphylla*. *L. arborescens*, *Seringia platyphylla*.
Lasiorrhiza rosea, *Chabræa runcinata*.
Latania Chinensis, *L. Borbonica*.
Lathyrus fruticosus, *Coursetia tomentosa*.
L. Bithynicus, *Vicia Bithynica*.
Laurus Borbonica, *Carolinensis*. *L. persea*, *Persea gratissima*. *L. Beilgota*, *Culilaban*, and *Malabatum*, *Cinnamomum*.
L. glauca, *C. glaucum*. *L. gracilis*, *C. gracile*. *L. montana*, *C. montanum*.
L. nitida, *C. nitidum*. *L. cassia*, *C. cassia* and *vernum*. *L. cinnamomum*, *C. cassia* and *vernum*. *L. dulce* and *Burmanni*, *C. dulce*.
Lavandula formosa, *L. pinnata pubescens*.
L. carnosa, *Anisochilus*.
Lavatera Empedoclis, *L. flava*. *L. undulata*, *L. pseudo-olbia*.
Lawsonia inermis, *L. alba*. *L. spinosa*, *L. purpurea*.
Lebeckia nuda, *Indigofera*.
Ledum Grænländicum, *L. Canadense*. *L. buxifolium*, *Ammyrsine buxifolia*.
Leimanthum. See ZYGADENUS.
Leiophyllum thymbifolium, *Ammyrsine buxifolia*.
Lenticula palustris, *Pistia stratiotes*.
Leontice thalioides, *Caulophyllum*.
Leontopodium vulgare, *L. Helveticum*.
Lepidium oppositifolium, *Eunomia oppositifolia*. *L. procumbens*, *Hutchinsia*.
L. alpinum, *H. alpina*. *L. calycinum*, *H. calycina*. *L. petræum*, *H. petræa*.
Leptanthes reniformis, *Heteranthera acuta*.
Leptarrhena pyrolæfolia, *Saxifraga*.
- Leptochilus axillaris*, *Gymnopteris nico-tianæfolia*.
Leptospermum grandifolium, *L. grandiflorum*. *L. ambiguum*, *Metrosideros corrifolius*.
Leptostegia lucida, *Onychium lucidum*.
Leschenaultia Baxterii, *L. oblata*.
Lespedeza reticulata, *L. violacea reticulata*. *L. sessiliflora*, *L. violacea sessiliflora*. *L. hirta*, *L. villosa*. *L. divergens*, *L. violacea divergens*.
Lettsomia, *Argyrea*.
Leucadendron grandiflorum, *Leucospermum*.
Leuceria runcinata, *Chabræa*. *L. senecioides*, *Trixis*.
Leucographis lamium and *Vogeliana*, *Brillantaisia Owarimensis*.
Leucium maritimum minus, *Malcolmia litorea*. *L. autumnalis*, *Acis*. *L. roseum*, *A. roseus*. *L. trichophyllum*, *A. trichophyllum*.
Leucopogon parviflorus, *L. Richei*.
Leucosceptrum canum, *Clerodendron leucosceptrum*.
Leucothoe nerifolia and *crassifolia*, *Andromeda nerifolia*.
Lightfootia tenella, *L. Loddigesii*.
Ligusticum levisticum, *Levisticum officinale*. *L. Nepalense*, *L. spicatum*.
Lilium fulgens, *L. atro-sanguineum*. *L. autumnale*, *L. Carolinianum*. *L. speciosissimum*, *L. eximium*. *L. lancifolium*, *L. speciosum*. *L. lancifolium roseum*, *L. speciosum punctatum*. *L. Pennsylvanicum*, *L. spectabile*. *L. Thomsonianum*, *L. roseum*. *L. eordifolium*, *L. giganteum*. *L. Kamtschatkense*, *Fritillaria lanceolata*. *L. pudicum*, *F. pudica*.
Limodorum altum, *Bletia verecunda*. *L. eburneum*, *Angræcum*. *L. tuberosum*, *Calopogon pulchellus*.
Limonia pentaphylla, *Clausena*. *L. laureola*, *Skimmia Japonica*.
Limonium monophyllum, *Atalantia monophylla*.
Linaria speciosa, *L. bipartita*. *L. stricta*, *L. Monspensulana*.
Lindernia Japonica, *Mazus rugosus*.
Lindsæa ensifolia and *heterophylla*, *Schizoloma*. *L. tenuifolia*, *Odontoloma tenuifolium*. *L. lobulosa*, *Synaphlebium lobulosum*. *L. pectinata*, *S. pectinatum*. *L. recurvata*, *nitens*, and *serpens*. *S. recurvatum*.
Sinningia calycina, *Conradia*.
Linum perenne, *L. Anglicum* and *Sibiricum*. *L. tenuifolium bicolor*, *L. bicolor*.

- L. angustifolium decumbens*, *L. decumbens*. *L. angustifolium*, *L. marginatum*. *L. Austriacum*, *L. Sibiricum* and *squamulosum*.
- Liparia* graminifolia, capitata, hirsuta, lævigata, myrtifolia, sericea, teres, tomentosa, umbellifera, vestita, and villosa, *Priestleya*.
- Liquidambar* orientale, *L. imberbe*.
- Liquiritia* officinalis, *Glycyrrhiza glabra*.
- Lisyanthus* longifolius, *Leianthus longifolius* and *Tachia longifolia*. *L. ophiorrhiza*, *Metternichia principis*. *L. cordifolius*, *Tachia cordifolia*. *L. exsertus*, *T. Swartzii*. *L. glaucifolius*, *L. Russellianus*. *L. trifidus* and *tetragonus*, *L. acutangulus*. *L. angustifolius*, *L. Kunthii*.
- Lithospermum* canescens, *Batschia*. *L. hirtum*, *B. Gmelini*. *L. latifolium*, *L. officinale latifolium*.
- Litsea* citrifolia, *Tetranthera apetalata*. *L. Zeylanica*, *T. trinervis*.
- Loasa* tricolor, *L. nitida*. *L. ambrosiæfolia*, *L. hispida*. *L. acanthifolia*, *L. Placei*. *L. Pentlandica* and *lateritia*, *Cajophora*. *L. volubilis*, *Scyphanthus grandiflorus*. *L. palmata*, *Blumenbachia insignis*.
- Lobelia* erinoides, *L. campunuloides*. *L. Goodenioides*, *L. Claytoniana*. *L. maculata*, *L. rugulosa*. *L. pedunculata*, *L. Simsii*. *L. Surinamensis*, *Siphocampylos*. *L. gigantea*, *S. giganteus*. *L. speculum*, *Monopsis conspicua*. *L. longiflora*, *Hippobroma longiflorum*. *L. arguta*, *polyphylla*, and *purpurea*, *Tupa*. *L. gigantea* and *salicifolia*, *T. salicifolia*. *L. tupa*, *T. Feuillei*. *L. cardamines* and *volubilis*, *Cyphia*. *L. Begoniæfolia* and *corymbosa*, *Pratia*. *L. concolor*, *P. erecta*. *L. unidentata* and *variifolia*, *Parastranthus*. *L. lutea*, *P. simplex*.
- Loiseleuria* procumbens, *Chamaeledon*.
- Lomaria* antarctica, *L. alpina*. *L. obtusifolia*, *obtusata*, *setigera*, and *zamioides*, *L. Magellanica*. *L. aurita*, *Chilensis*, and *ornifolia*, *L. vestita*. *L. limonifolia*, *sorbifolia*, and *spondifolia*, *Stenochlæna*. *L. filiformis* and *propinqua*, *S. heteromorpha*.
- Lonchitis* hirsuta, *Litobrochia*.
- Lonicera* Sibirica, *L. alpigena Sibirica*. *L. campaniflora*, *L. nigra campaniflora*. *L. glabratum*, *Caprifolium Chinense*. *L. caprifolium*, *C. Italicum*. *L. Diervilla*, *Diervilla lutea*. *L. symphoricarpus*, *Symphoricarpus vulgaris*.
- Lopezia* grandiflora, *L. macrophylla*.
- Lophospermum* rhodochiton, *L. atro-sanguineum*.
- Loranthus* floribundus, *Nuytsia floribunda*.
- Lotus* diffusus, *L. angustissimus*. *L. decumbens*, *L. Forsteri*. *L. pinnatus*, *Hosackia bicolor*. *L. sericeus*, *H. Purshiana*. *L. australis*, *Carmichaelia*. *L. biflorus* and *siliquosus*, *Tetragonolobus*. *L. conjugatus*, *T. biflorus* and *conjugatus*. *L. tetragonolobus*, *T. purpureus*. *L. hirsutus*, *Dorycnium hirsutum*. *L. rectus*, *D. rectum*. *L. dorycnium*, *D. suffruticosum*. *L. tomentosus*, *sericeus*, and *affinis*, *D. tomentosum*.
- Loxotis* Zeylanica, *Rhyncoglossum Zeylanicum*.
- Ludia* tuberculata, *L. sessiliflora*. *L. heterophylla*, *Prockiu theaeformis*.
- Ludovia* funifera, *Carludovica*.
- Lumnitzera* ocyroides, *Moschosma*.
- Lunaria* annua, *L. biennis*.
- Lupinaster* pentaphyllum, *Trifolium lupinaster*. *L. oblongifolium*, *T. purpurascens*.
- Lychnis* brachypetala, *L. apetalata pauciflora*. *L. Pyrenaica*, *Agrostemma*.
- Lycium* carnosum, *L. rigidum*.
- Lycopodium* apothecium, *L. Brazilianse*. *L. Helveticum*, *L. denticulatum*. *L. cuspidatum*, *L. cordatum*. *L. umbrosum*, *L. plumosum*.
- Lygodium* dichotomum, *L. flexuosum*.
- Lysimachia* quadrifolia, *L. longifolia*.
- Lythrum* Kennedyanum, *L. alatum*. *L. diffusum*, *L. lanceolatum*.

M.

Macræa, *Viviania*.

Macrochilus Fryanus, *Miltonia spectabilis*.

Macrocnemum coccineum, *Mussaenda coccinea*.

Madia mellosa and viscosa, *M. sativa*.

Mæsa tomentosa, *M. macrophylla*.

Magnolia gracilis and Yulan, *M. conspicua*. *M. tomentosa*, *M. Kobus*. *M. umbrella*, *M. tripetala*. *M. pumila*, *Talauma*. *M. odoratissima*, *T. Candollii*.

Mahernia odorata, *M. glabrata*. *M. Burchellii*, *M. grandiflora*. *M. grandiflora*, *Hermannia*.

Mahonia nervosa and glumacea, *Berberis nervosa*. *M. Japonica*, *B. Bealei*.

Malaxis caudata, *Brassia*.

Malesherbia coronata, *M. linearifolia*.

Malpighia puniceifolia, *M. biflora*. *M. canescens*, *glandulifera*, and *nitida*,

- Bunchosia*. *M. altissima*, coriacea, crassifolia, lucida, Moureila, pallida, verbascifolia, and volubilis, *Byrsonima*. *M. macrophylla*, *B. nervosa*.
- Malva alceoides*, *M. Morenii*. *M. scoparia*, *M. scabra*. *M. reflexa*, *M. triductylites*. *M. Caroliniana*, *Modiola* and *Sphæralcea*. *M. abutiloides*, angustifolia, decumbens, elegans, obtusiloba, prostrata, and umbellata, *Sphæralcea*.
- Mammillaria cæspitosa*, *Cactus densus* (Mammillaria). *M. straminea*, *C. flavescent* (Mammillaria). *M. stellaris*, *C. stellata* (Mammillaria).
- Manettia cordifolia*, *M. glabra*.
- Mangifera glauca*, *Elæodendron*.
- Manglilla Canariensis*, *Myrsine*. *M. Milleriana*, *M. mitis*.
- Mangostana Garcinia*, *Garcinia mangostana*.
- Manulea cordata*, foetida, and villosa, *Chænostoma*. *M. hispida* and oppositifolia, *C. hispida*. *M. pedunculata*, pinatifida, and violacea, *Lyperia*.
- Maranta zebrina*, *Calathea*. *M. comosa*, *Phrynium comosum*.
- Marica iridioides*, *Sisyrinchium Bermudianum*. *M. iridifolia*, *S. iridifolium*. *M. plicata*, *S. plicatum*. *M. gladiata*, *Borbartia*.
- Marrubium affine*, *M. leonuroides*. *M. apulum*, *M. vulgare lanatum*.
- Martynia annua*, *M. proboscidea*.
- Massonia pustulata*, *M. scabra*.
- Mathiola scabra*, *Guettarda*.
- Maxillaria placenthera*, *M. viridis*. *M. macrophylla*, Skinneri, tetragona, aromatica, Barringtonia, costata, cruenta, and Deppii, *Lycaste*. *M. galeata*, *Acropera Loddigesii*. *M. Steelii*, *Scuticaria*. *M. citrina* lentiginosa, Rollissonii, Stapelioides, and xanthina, *Promenæa*. *M. atro-purpurea*, aureo-fulva, and vitellina, *Bifrenaria*. *M. Brocklehurstiana*, *Houlletia*. *M. Warreana*, *Warreana tricolor*. *M. cristata*, *Paphinia*.
- Meconopsis petiolata*, *M. diphylla*.
- Medeola asparagoides*, *Myrsiphyllum*.
- Medicago tricycla*, *M. striata*. *M. pubescens*, *M. Hornemanniana*. *M. helix*, *M. levis*. *M. lupulina* anguiculata, *M. mniocarpa*.
- Medusa major*, *Euphorbia caput Medusæ*.
- Megasea ciliata*, *Saxifraga ligulata*.
- Melaleuca, Astartea*. *M. parviflora*, *M. decussata*. *M. canescens* and tomentosa, *M. incana*. *M. Cajaputi*, *M. minor*. *M. epacridea*, *M. stypheloides*. *M. discolor*, *M. thymifolia*.
- Melanthium Virginicum*, *Zygadenus*. *M. hybridum*, latifolium, and racemosum, *Z. hybridum*. *M. monoicum* and polygamum, *Z. monoicum*. *M. eucomioides*, *Androcymbium*. *M. monopetalum*, *Wumbea campanulata*. *M. spicatum*, *W. purpurea*.
- Melastoma Malabathrica*, *M. macrocarpa*. *M. granulosa*, *Lasiandra Fontanesiana*. *M. subtriplinerium*, *Heteronoma*. *M. nivea*, *Heterotrichum niveum*. *M. arborescens*, *Loreya*. *M. Fothergilla*, *Diplochita* and *Chiltonia*. *M. Tamonia*, *D. Swartziana* and *C. Tamonia*. *M. Nepalensis*, *Osbeckia*. *M. Osbeckioides*, *O. Chinensis*. *M. aquatica* and discolor, *Aciotis*. *M. purpurascens*, *Ossæa*. *M. acinodendron*, grandifolia, lævigata, and trinervia, *Miconia*. *M. purpurea*, *M. purpurascens*. *M. trivalvis*, *Microlicia bivalvis*. *M. albicans* and pyramidalis, *Chiltonia*. *M. Swartziana*, *C. Tamonia*. *M. discolor*, *Tetrazygia*. *M. tetrandra*, *T. discolor* and *Micoma tetrandra*. *M. heteromalla*, *Pleroma*. *M. villosum*, *P. villosa*.
- Melilotus Sibirica*, *Medicago*. *M. brachyloba*, *M. brachycarpa*.
- Melissa altissima* and cordifolia, *M. officinalis villosa*. *M. alba*, *Nepeta Croatica*. *M. grandiflora*, *Calamintha*.
- Mellocia tuberosa* and Peruviana, *Basella tuberosa*.
- Melocactus Besleri*, *Cactus placentiformis* (Melocactus).
- Melvillea speciosa*, *Cuphea Melvilla*.
- Meniscium proliferum*, *Goniopteris prolifer*.
- Menispermum Virginicum*, *M. Canadense lobata*. *M. cocculus*, *Cocculus Plukenetii*. *M. fenestratum*, *Coscinium fenestratum*.
- Mentha rivalis*, *M. arvensis*. *M. borealis*, *M. Canadensis glabrata*. *M. odorata*, *M. citrata*. *M. Capensis*, *M. salicina*. *M. hirta*, *M. suavis*. *M. brevispicata* and lævigata, *M. viridis*. *M. crispata*, *M. viridis crispata*. *M. quadrifolia*, *Drysophylla*. *M. pumila* and verticillata, *D. pumila*. *M. australis*, *Micromeria*.
- Menyanthes Americana*, *M. trifoliata Americana*. *M. Indica* and nymphoides, *Villarsia*.
- Merendera montana*, *Colchicum montanum*.
- Meriana speciosa*, *Tocoyena longiflora*.
- Myrsine Heberdenia*, *Ardisia excelsa*.
- Mertensia*. See PULMONARIA.
- Mesembryanthemum canescens*, *M. pulchellum*. *M. hirsutum*, *M. stellatum*.

- M. hispidum*, *M. subhispidum*. *M. stellatum*, *M. gracile*. *M. Candollii*, *M. helianthoides*. *M. purpureo-croceum*, *M. institium*. *M. dimidiatum*, *M. lacerrum*. *M. magnipunctatum*, *M. nobile*. *M. micranthum*, *M. parviflorum*.
- Mespilus grandiflora* and *Smithii*, *M. lobata*. *M. linearis*, *Cratægus crus-galli linearis*. *M. nana*, *C. crus-galli nana*. *M. Constantinopolitana*, *C. coccinea Neapolitana*. *M. Japonica*, *Eriobotrya*. *M. euila*, *E. elliptica*. *M. Canadensis*, *Amelanchier sanguinea*. *M. Amelanchier*, *A. vulgaris*. *M. Bengalensis*, *Photinia dubia*. *M. cotoneaster*, *Cotoneaster vulgaris*.
- Messerschmidtia Caracasana*, umbellata, and velutina, *Tournefortia*.
- Metalsia* umbellata, *Erythropogon*. *M. uniflora*, *E. imbricatus*.
- Metrosideros pauciflora*, *Eremaea pilosa*. *M. floribunda*, *Aemena*. *M. lophanthus*, rugulosus, salignus, speciosus, and viminalis, *Callistemon*. *M. citrinus*, *C. lanceolatus*. *M. hispidus*, *Angophora cordifolia*.
- Metroxylon sagus*, *Sagus Rumphii*.
- Metternichia princeps*, *M. principis*.
- Meum fœniculum*, *Anethum*.
- Michauxia decandra*, *M. levigata*.
- Micropora pyrifolia*, *M. Banksii*.
- Microsorium irregulare*, *Drynaria irioides*.
- Microtis pallida*, *Micropora*.
- Millingtonia hortensis*, *Bignonia suberosa*.
- Miltonia Clowesii*, *Brassia*.
- Mimosa juliflora*, *Prosopis*. *M. polystachya*, *Entada*. *M. entada*, *E. monostachya*. *M. adenanthera*, plena, and punctata, *Neptunia plena*. *M. pteropunctata*, *Gagnebina axillaris*. *M. Houstoni*, *Inga*. *M. fagifolia*, *I. Burgoni* and *laurina*. *M. tortuosa*, *Acaria Brunmanniana*. *M. giraffæ*, *A. coronillaefolia*. *M. nigricans*, *A. Rohriana*. *M. verticillata*, *A. verticillata angusta* and *verticillata latifolia*.
- Mimulus propinquus*, *M. glabratus*. *M. luteus*, *M. guttatus*. *M. perfoliatus*, *Leucocarpus alatus*. *M. glutinosus*, *Diplacus*.
- Mitella reniformis*, *M. nuda*. *M. pentandra*, *Drummondia mitelloides*.
- Modiola Caroliniana*, decumbens, and prostrata, *Sphæralcea*.
- Molina parviflora*, *Baccharis*. *M. canescens*, *Cupania*.
- Monarda citriodora*, *M. aristata*. *M. Kalmaniana*, *M. didyma*. *M. affinis*, altissima, media, oblonga, purpurea, and rugosa,
- M. fistulosa*. *M. menthaefolia*, *M. fistulosa flore-maculato*. *M. mollis*, *M. fistulosa mollis*.
- Monatelia secundiflora*, *Retiniphyllum secundiflorum*.
- Monocera lanceolata* and *grandiflora*, *Elæocarpus grandiflorus*.
- Monsonia speciosa*, *M. pilosa*. *M. spinosa*, *Sarcocaulon Heritieri*.
- Montia*. See *WRIGHTIA*.
- Moræa edulis lutescens*, *M. longifolia*. *M. lurida*, pavonia, tenuis, and tricuspis, *Vieusseuxia*. *M. tricuspis lutea*, *V. Bellenzeni*. *M. tripetala*, *V. tripetaloides*. *M. unguiculata*, *V. unguicularis*. *M. villosa*, *V. villosus*. *M. Herberti*, *Cypella*. *M. gladiata* and *spathacea*, *Bobartia*.
- Morus Sinensis*, *M. alba Italica* and *alba Sinensis*. *M. pumila* and *nana*, *M. alba pumila*. *M. Pennsylvanica*, *M. rubra*, *M. papyrifera*, *Broussonetia*. *M. Plumieri* et *tinctoria*, *Maclura*.
- Murucya adiantifolia* and *Herbertiana*, *Disemma*.
- Muscari moschatum* and *flavum*, *M. muscrocarpum*.
- Musseenda luculia*, *Luculia gratissima*. *M. spinosa*, *Gardenia armata*.
- Mutisia speciosa*, *M. arachnoidea*.
- Myosotis obtusa*, *Achusa Barrelieri*. *M. macrophylla*, *A. myosotidiflora*. *M. linifolia*, *Heliotropium linifolium*. *M. lithospermifolia*, rupicola, and suaveolens, *M. palustris*.
- Myrica Carolinensis* and *Pennsylvanica*, *M. cerifera latifolia*.
- Myristica officinalis*, *M. moschata*.
- Myrobalanus Fatræa*, *Terminalia*.
- Myrosma cannaefolia*, *Phrynium myrosma*.
- Myrsine retusa*, *M. Africana retusa*.
- Myrtus Ugni*, *Eugenia*. *M. pimenta* *Pimenta vulgaris*. *M. acris*, coriacea, and pimentoides, *Myrcia*.

N.

- Nantilocalyx hastatus*, *Centrosolenia bracteescens*.
- Narcissus radiiflorus*, *N. angustifolius*. *N. triandrus*, *N. cernuus*. *N. orientalis*, *N. citrinus*. *N. præcox*, *N. Italicus*. *N. bicolor*, *N. torifolius*. *N. Tazetta*, *N. multiflorus*. *N. trilobus*, *N. nutans*. *N. calathinus*, *N. obvallaris* and *trilobus*. *N. unicolor* and *nevius*, *N. papyracens*. *N. poeticus* and *majalis*, *N. patellaris*. *N. moschatus*, *N. patulus*. *N. festalis*, *N. pseudo-narcissus*. *N. odoratus* and *tripartitus*, *N. trilobus*.

Nauclea adina, *Adina globiflora*. N. Gambier, *Uncaria*.
Neccea salicifolia, *Heimia*.
Nectris peltata, *Cabomba aquatica*.
Negundium Americanum, *Negundo fraxinifolium*.
Nematanthus Guillemianus, *Columnnea splendens*.
Nemopanthus fascicularis, *N. Canadensis*.
Neottia repens, *Goodyera*.
Nepeta patella, *N. graveolens*. N. longiflora, N. Mussini. N. amethystina, N. nepetella. N. paniculata, N. Pannonica. N. Malabarica, *Anisomeles*. N. marifolia, *Calamintha* and *Micromeria*.
Nephrodium serra, *thelypteris*, *filix-mas*, *Noveboracensis*, and *oreopteris*, *Lastrea*. N. semicordatum, *L. semicordata*. N. spinulosum, *L. spinulosa*. N. decompositum, *L. decomposita*. N. elongatum, *L. elongata*. N. Goldianum, *L. Goldiana*. N. marginale, *L. marginalis*. N. proliferum, *Polystichum*. N. punctilobium, *Sitolobium*. N. asplenoides, *Asplenium athyrium*. N. filix-fœmina, *A. Michauxii*. N. Barometz, *Cibotium*. N. lanosum, *Cheilanthes vestita*. N. Banksiæfolium, *Osmunda* and *Lastrea Presliana*.
Neptunia polyphylla, *N. plena*.
Nerine laticoma, *Brunsvigia lucida*.
Nerium, *Wrightia*. N. coronarium, *Tabernaemontana coronaria flore-pleno*. N. tinctorium, *Alstonia scholaris*.
Neuronia asplenoides, *Oleandra Wallichii*.
Nicotiana nyctaginiflora, *Petunia*. N. suaveolens, *N. undulata*.
Nierembergia linariæfolia, *N. filicaulis*. N. phœnicea, *N. violacea*. N. intermedia, *Petunia*.
Nipholobus carnosus, *Drymoglossum carnosum*.
Nothochlæna lævis, *N. sinuata*. N. cheilanthesoides, *Cheilanthes microphylla*. N. distans, *hirta*, lanuginosa, *rufa*, tomentosa, and *vestita*, *Eriochasma*.
Numezia fragrans, *Chamædorea*.
Nuphar minima, *N. pumila*.
Nuttallia involucrata, *Malva*.
Nycterium Amazonium, *Fontanesianum*, and *rostratum*, *Solanum*. N. lobatum, *S. heterandrum*. N. cordifolium, *S. vespertilio*.
Nymphæa stellata, *N. cærulea*. N. cahlara, *N. cyanea*. N. esculenta, *N. edulis*. N. odorata minor, *N. minor*. N. cærulea, *N. scutifolia*. N. lotus, *N. Ama-*

zonum and *thermalis*. N. blanda and *fœtida*, *N. Amazonum*. N. advena and *lutea*, *Nuphar*.
Nyssa aquatica, *N. biflora*. N. capitata, *N. candicans*. N. denticulata and tomentosa, *N. grandidentata*. N. sylvatica, *N. villosa*.

O.

Obesia. See STAPELIA.
Ochna squarrosa, *O. obtusata*. O. Zeylanica, *Gomphea*.
Ocimum caryophyllatum, *O. basilicum glabratum*. O. thyrsoiflorum, *O. basilicum thyrsoiflorum*. O. cordifolium, *O. Dejeri*. O. grandiflorum, *O. filamentosum*. O. asperum, *Orthosiphon asperus*.
Odontoglossum Bictonense, *Zygopetalum Africanum*. O. Clowesii, *Brassia*.
Enoplia volubilis, *Berchemia*. *OE. lineata*, *B. lineatus*.
Enothera ambigua, *OE. fruticosa ambigua*. *OE. alata*, *OE. Missouriensis*. *OE. striata*, *OE. nocturna*. *OE. undulata*, *OE. odorata*. *OE. pinnatifida*, *OE. Purshii*. *OE. minima*, *OE. sinuata minima*. *OE. rhizocarpa*, *OE. triloba*.
Olea undulata, *O. Capensis undulata*. O. Europæa, *O. sativa*.
Omphalobium Schottii, *Schotia latifolia*.
Onceidium juncifolium, *O. Cebolleti*.
Onobrychis orientalis, *O. cornuta*. O. picta, *O. Michauxii*.
Onoclea nuda, *Lomaria*.
Ononis fruticosa, *O. fruticosa microphylla*. O. barbata, *O. minutissima*.
Onopordon deltoideum, *Carduus atriplicifolius*.
Onosma arenarium, *O. echinoides arenarium*.
Onostachys malacophyllum, *Cotyledon*.
Onychium Krebsii, *Scolopendrium*.
Opercularia aspera and *diphylla*, *O. hispida*.
Ophiopteris verticillata, *Oleandra neriiiformis*.
Ophrys monorchis, *Herminium*. O. alpina, *H. alpinum*.
Opuntia humilis, *O. horrida*. O. glomerata, *O. longispina*.
Orbea. See STAPELIA.
Orchis parviflora, *O. acuminata*. O. palustris, *O. laxiflora*. O. Rivini, *O. militaris vera*. O. Cyrilli, *O. provincialis*. O. Schleicheri, *O. sambucina*. O. similia, *O. tephrosanthos*. O. tephrosanthos, *O. undulatifolia* and *macra*. O. foliosa, *Habenaria alata*. O. speciosa, *Bonatea*.

- Origanum stoloniferum*, *O. vulgare*. *O. humile*, *O. vulgare humile*. *O. Creticum* and *megastachyum*, *O. vulgare prismaticum*. *O. oblongatum* and *virens*, *O. vulgare virens*.
- Ornithogalum Bohemicum*, *Gagea Bohemica*. *O. luteum*, *G. bracteolaris* and *fiscularis*. *O. pygmaeum*, *G. pygmaea*. *O. minimum* and *arvense*, *G. stellaris*. *O. striatum*, *G. striata*. *O. uniflorum*, *G. uniflora*.
- Ornithopus tetraphyllus*, *Myriadenus*.
- Ornithopis cominia* and *serrata*, *Schmidelia*.
- Orobis* Gmelini, *O. lacteus*. *O. tomentosus*, *Coursetia tomentosa*.
- Orthostemma paniculata*, *Oxyspora*.
- Osbeckia grandiflora*, *Melastoma elongata*.
- Osmunda crispa*, *Allosorus*. *O. humilis* and *phillitidis*, *Anemia*. *O. Caroliniana*, *Woodwardia angustifolia*. *O. lunaria*, *Botrychium*. *O. procera*, *Lomaria*. *O. struthiopteris*, *Struthiopteris Germanica*.
- Othonna flabellifolia*, *O. virginea*.
- Otostemma lacunosa*, *Hoya*.
- Oxalis caprina*, *O. cernua*. *O. arracacha*, *O. crenata*. *O. rubens*, *O. microphylla*. *O. floribunda*, *O. rosea*. *O. Martiana*, *O. urtica*. *O. rosea*, *O. variabilis* Simsii.
- Oxyanthus speciosus*, *O. tubiflorus*.
- Oxycoccus erythrocarpus*, *O. erectus*. *O. hispidulus*, *Phalerocarpus serpyllifolia*.
- Oxytropis* Gmelini, *O. longirostra*. *O. sordida*, *O. Uralensis*.
- P.
- Pæonia Makoya*, *P. albiflora festa*. *P. laciniata*, *P. anomala*. *P. Tatarica*, *P. paradoxa fimbriata*. *P. Dahurica*, *P. triternata*. *P. sessiliflora*, *P. villosa*.
- Pallasia halimifolia*, *Encelia canescens*.
- P. grandiflora*, *E. halimifolia*.
- Pancratium Amboinense*, *Eurycles Amboinensis*. *P. aurantium*, *Stenomesson flavum*. *P. Amancees*, *Ismene*. *P. calathium*, *I. nutans*. *P. incarnatum*, *Coburgia incarnata*. *P. luteum*, *Ochlidanthus fragrans*. *P. Mexicanum*, *P. acutifolium* and *Hymenocallis adnata litoralis*. *P. Caribæum* and *declinatum*, *H. Caribæa*. *P. rotatum*, *H. rotata*. *P. speciosum*, *H. speciosa*.
- Papaver Burseri*, *P. alpinum*. *P. pulcherrimum*, *P. bracteatum*. *P. auran-tiacum*, *P. Pyrenaicum*. *P. alpinum*, *P. Pyrenaicum puniceum*. *P. Olympicum*, *P. pilosum*. *P. Cambrica*, *Meconopsis*.
- Parkeria acrostichoides*, *Cryptogramma*.
- Parkia biglobosa*, *P. Africana*.
- Passerina Tarton-raira* and *thymelæa*, *Daphne*. *P. villosa*, *D. tomentosa*. *P. conglomerata*, *Lachnæa*.
- Passiflora lyræfolia*, *P. cuneata*. *P. palmata*, *P. filamentosa*. *P. glauca*, *P. stipulata*. *P. adiantifolia* and *Herbertiana*, *Disemma*. *P. perfoliata*, *Murucuya*. *P. murucuya*, *M. ocellata*. *P. peduncularis*, *Tacsonia*. *P. sanguinea* and *quadriglandulosa*, *T. sanguinea*.
- Patersonia glauca*, *P. longiscapa*.
- Patrinia nudiuscula*, *P. intermedia*. *P. serratulifolia*, *P. scabiosæfolia*. *P. coronata*, *P. Sibirica*.
- Paullinia Asiatica*, *Toddalia aculeata*.
- Pavetta Indica*, *P. arensa*. *P. alba*, *P. Indica*. *P. foetidissima*, *Ernodea montana*. *P. Javanica*, *Ixora*.
- Pavia hybrida*, *P. discolor*. *P. parviflora*, *P. macrostachya*. *P. humilis*, *P. rubra humilis*.
- Pedicularis asplenifolia*, *P. atro-rubens*.
- Pekea tuberculosa*, *Caryocar tomentosum*.
- Pelargonium australe*, *P. glomeratum*.
- Pentstemon longiflorus*, *Conradia*.
- Pentstemon Bradburii*, *P. grandiflorus*. *P. elegans*, *P. pulchellum*. *P. Mexicanus*, *Tetranema Mexicana*.
- Perdicium Brasiliense*, *Trixis auriculata*. *P. roseum*, *Chabræa runcinata*. *P. Chilense*, *Chatanthera Chilensis*.
- Pereira medica*, *Coccinium fenestratum*.
- Periploca glabra*, *Vallaris perglana*.
- Periphragmos dependens* and *uniflorus*, *Cantua buxifolia*. *P. flexuosus* and *pyrifolia*, *C. pyrifolia*.
- Periploca linearis*, *Microlooma lineare*.
- Peristeria Barkeri* and *Humboldtii*, *Acineta*.
- Pernettya phillyræefolia*, *P. angustifolia*.
- Petrocarya campestris*, *Parinarium campestre*.
- Petunia phœnicea*, *P. intermedia*.
- Peucedanum obtusifolium*, *Ferula obtusifolia*. *P. Sibiricum*, *F. Sibirica*.
- Phaca*, *Astragalus*. *P. Floridana*, *Glottidium Floridanum*. *P. membranacea*, *P. alpina Dahurica*.
- Phacelia parviflora*, *Nemophila*.
- Phalangium*, *Watsonia*. *P. virgatum*, *Nolina Georgiana*.
- Pharium fistulosum*, *Bessera Herberti*.
- Philadelphus gracilis*, *P. hirsutus*. *P. Nepalensis*, *P. tomentosus*. *P. grandiflorus*, *P. verrucosus*.
- Philibertia gracilis*, *P. grandiflora*.

- Phillyrea virgata*, *P. ligustrifolia*. *P. ilicifolia*, *P. spinosa*. *P. robusta*, *Olea*.
Phlomis Samia, *P. bicolor*. *P. Cretica*, *P. ferruginea Cretica*. *P. rotundifolia*, *P. Italica*. *P. microphylla*, *P. lanata*. *P. salviifolia*, *P. purpurea*. *P. lunarifolia* Russelliana, *P. Russelliana*. *P. virens*, *P. viscosa*. *P. leonurus*, *Leonitis*. *P. leonitis*, *L. ovata*.
Phlox amœna, *P. pilosa amœna*. *P. stolonifera*, *P. reptans*. *P. crassifolia*, *P. reptans crassifolia*. *P. scabra*, *P. Sickmanni*. *P. longiflora*, *P. tardiflora*.
Phycella ignea glauca, *P. glauca*. *P. obtusa*, *Phædranassa*. *P. chloracea*, *P. chloræra*.
Phylla pubescens, *P. capitata*. *P. eriophora*, *P. nitida eriophora*. *P. cordata*, *doica*, *myrtifolia*, and *thymifolia*, *Sonlangia*. *P. radiata*, *Staavia*.
Phyllanthus kirganelia, *Kirganelia elegans*. *P. linearis*, *Xytophylla*. *P. ceramicus*, *X. longifolia*. *P. arbuscula*, *X. speciosa*. *P. angustifolius* and *epiphyllanthus*, *X. angustifolia*. *P. falcatus*, *X. fulcata*. *P. latifolius*, *X. latifolia*. *P. emblica*, *Emblica officinalis*. *P. racemosus*, *E. racemosa*.
Phylogyne minor, *Narcissus pusillus*.
Phymatanthus tricolor, *Pelargonium*.
Physematum, *Woodsia*.
Phyteuma strictum and *virgatum*, *P. limoniifolium*. *P. cordatum*, *P. orbiculare*. *P. brevifolium*, *P. orbiculare decipiens*. *P. ellipticum*, *P. orbiculare giganteum*. *P. ovatum*, *P. Scheuchzeri*.
Picea. See PINUS.
Pierardia sapida, *P. dulcis*.
Pilosus incisa, *Heliophila araboides*.
Pinus palustris, *P. australis*. *P. Lemoniana*, *P. pinaster Lemoniana*. *P. rubra*, *P. resinosa*. *P. cedrus*, *Cedrus Libani*. *P. Dammara*, *Dammara orientalis*. *P. lanceolata*, *Cunninghamia Sinensis*.
Piriqueta racemosa, *Turnera*.
Piscidia erythrina, *P. Carthaginensis*. *P. longifolia*, *Daubentonia*.
Pistacia lentiscus Massiliensis, *P. lentiscus angustifolius*. *P. officinarum*, *P. vera*. *P. reticulata*, *P. vera Narbonensis*.
Pitcairnia coarctata, *Puya Chilensis*.
Pittosporum hirsutum, *P. hirtum*.
Planera aquatica, *P. Gmelini*.
Plantago aquatica, *Pistia stratiotes*.
Platanus acerifolia, *P. orientalis acerifolia*. *P. cuneata*, *P. orientalis cuneata*.
Platylobium scolopendrium, *Bossiaea*. 1'.
lanceolatum and *ovatum*, *B. heterophylla*.
Platyloma calomelanos, *Allosorus*. *P. cordata*, *A. cordatus*.
Plectranthus rubicundus, *Orthosiphon*. *P. asper*, *O. asperus*. *P. fruticosus*, *Coleus*. *P. scutellarioides*, *C. Blumei*. *P. barbatus* and *Forskahlii*, *C. barbatus*. *P. monachorum*, *Ocymum sanctum*.
Pleione maculata, *Cœlogyne*.
Pleopeltis nuda, *Drynaria sesquipedalis*.
Pleroma glomerata, *Osbeckia*. *P. holosericeum*, *Lasiandra argentea*. *P. Fontanesii*, *L. Fontanesiana*.
Pleurothallis coccinea, *Rodriguezia secunda*.
Plumieria tricolor, *P. Kerii*. *P. Gouani*, *P. Lambertiana*.
Podalyria alpina, *Thermopsis Corgonensis*. *P. lupinoides*, *T. lanceolata*. *P. biflora*, *P. argentea*. *P. obcordata*, *Requienia*. *P. uniflora*, *Baptisia lanceolata*.
Podanthe. See STAPELIA.
Podocarpus asplenifolius, *Phyllocladus rhomboidalis*. *P. drupacea* and *coriacea*, *Cephalotaxus drupacea*.
Podolobium equifolium, *P. stanrophyllum*.
Podophyllum diphyllum, *Jeffersonia diphylla*.
Podoria Senegalensis, *Boscia*.
Pogonia glabra, *Myoporum ellipticum*.
Poinciana tarra, *Coulteria tinctoria*.
Poiretia elliptica and *linearis*, *Hovea*.
Polemonium bursifolium, *P. Mexicanum*.
Polybotrya acuminata, *Gymnopteris*. *P. Corcovadense* and *cervina*, *Olfersia*. *P. peltata* and *tripartata*, *Rhipidopteris*.
Polygala oppositifolia, *P. Borboniaefolia*. *P. cordifolia*, *P. latifolia*. *P. grandiflora*, *P. myrtifolia grandiflora*. *P. sanguinea*, *P. purpurea*. *P. spinosa*, *Mundia*. *P. viminea*, *M. spinosa angustifolia*. *P. alopecuroides*, *filiformis*, *Heisteria*, *humilis*, and *mixta*, *Muraltia*.
Polygonatum latifolium, *P. macrophyllum*.
Polygonum acutatum and *cymosum*, *Fagopyrum cymosum*. *P. frutescens*, *Tragopyrum lanceolatum*. *P. polygamum* and *parvifolium*, *T. polygamum*. *P. Caucasicum* and *crispulum*, *T. buxifolium*. *P. petiolatum*, *P. amplexicaulis*.
Polypodium axillare, *Allantodia axillaris*. *P. umbrosum*, *A. umbrosa*. *P. filix-femina* and *fontanum*, *Asplenium*. *P. grande*, *Platycerium biforme*. *P. areolatum*, *aureum*, and *decumanum*, *Phlebodium*. *P. glabellum*, *P. lycopodioides*. *P. glaucum*, *P. sporocarpium*. *P. ad-*

- nascens, confluens, lineare, lingua, and rupestris, *Niphobolus*. *P. pertusum*, *N. pertusus*. *P. latifolium*, *P. plantagineum*. *P. decursive-pinnatum*, *Lastræa decurrens*. *P. oxyphyllum*, *L. eburnea*. *P. nerifolium*, pectinatum, attenuatum, and dissimile, *Goniophlebium*. *P. longifolium*, *G. menisciifolium*. *P. hirsutissimum*, *G. sepultum*. *P. asperum*, *Goniopteris aspera*. *P. proliferum*, *G. fraxinifolia*. *P. viviparum*, *G. prolifera*. *P. longifrons*, *Drynaria*. *P. polycephalum* and *irioides*, *D. irioides*. *P. albidosquamatum*, *D. albidosquamata*. *P. scandens*, *D. Billardieri* and *pustulata*. *P. juglandifolium*, *D. capitellata*. *P. cuspidiflorum*, *D. cuspidiflora*. *P. diversifolium*, *D. diversifolia*. *P. membranaceum*, *D. hemionitidea*. *P. phymatodes*, *D. vulgaris*. *P. cuspidatum*, *D. leiorrhiza* and *albidosquamata*. *P. neglectum*, *D. neglecta*. *P. palmatum*, *D. palmata*. *P. caespitosum* and *pustulatum*, *D. pustulata*. *P. quercifolium*, *D. quercifolia*. *P. rupestre*, *D. rupestris*. *P. graminmitoides*, *Xiphopteris heterophylla*. *P. fragrans*, *Cheilanthes*. *P. Barometz*, *Cibotium*. *P. reticulatum*, *Meniscium*. *P. rugulosum*, *Hypolepis rugulosa*.
- Populus nivea*, *P. alba*. *P. suaveolens*, *P. balsamifera suaveolens*. *P. viminalis* and *longifolia*, *P. balsamifera viminalis*. *P. macrophylla*, *P. candicans*. *P. acerifolia*, *P. canescens acerifolia*. *P. dilatata*, *P. fastigiata*. *P. Acladesca*, *P. monilifera*. *P. lævigata*, *P. tremula lævigata*. *P. supina*, *P. tremula supina*.
- Porana paniculata* and *racemosa*, *Dinetus*. *Portenschlagia australis*, *Elæodendron australe*.
- Portlandia hexandra*, *Coutarea speciosa*. *Portulaca racemosa*, *Talinum triangulare*. *Posoqueria dumetorum* and *fragrans*, *Gardenia*.
- Potentilla comarum*, *Comarum palustre*. *P. aurea*, *Halleri*, and *Salisburgensis*, *P. alpestris*. *P. leucophylla*, *P. angustifolia*. *P. pumila*, *P. Canadensis*. *P. Thuringiaca*, *P. chrysantha*. *P. sabauda* and *filiformis*, *P. crocea*. *P. Nepalensis*, *P. formosa*. *P. fragariastrum*, *P. fragaria*. *P. Dahurica*, *P. fruticosa Thuringiaca*. *P. floribunda*, *P. fruticosa tenuiloba*. *P. Weinmanniana*, *P. Guntheri*. *P. vinosa*, *P. Loddigesii*. *P. hispida*, *P. Pennsylvanica*. *P. splendens*, *P. Sieversiana*.
- Pothos grandiflora*, *P. macrophylla*. *Pourretia coarctata*, *Pitcairnia*. See *PUYA*.
- Primula grandiflora*, *P. Carniolica*. *P. intermedia*, *P. Davurica*. *P. Norvegica*, *P. Finmarchica*. *P. calycina*, *P. glaucescens*. *P. crenata*, *P. marginata*. *P. nivalis*, *P. nivea*. *P. Sinensis*, *P. prænitens*. *P. villosa*, *P. pubescens*. *P. rotundifolia*, *P. Sibirica*. *P. Hornemanniana*, *P. stricta*. *P. Columnæ*, *P. suaveolens*. *P. acaulis*, *P. vulgaris*. *P. villosa flore-albo*, *P. Simsii*.
- Prismatocarpus speculum*, *Specularia*. *P. falcatus*, *S. falcata*. *P. hybridus*, *S. hybrida*. *P. pentagonius*, *S. pentagonia*. *P. perfoliatus*, *S. perfoliata*. *P. hirsutus*, *S. speculum pubescens*.
- Proiphys Amboinensis*, *Eurycles*. *P. Australasicum*, *E. Australasica*.
- Protea decumbens*, *Serruria Niveni*. *P. abrotanifolia odorata*, *S. odorata*. *P. candicans*, *Leucospermum*. *P. cucullata*, *Mimetes*. *P. speciosa*, *P. obtusa*. *P. divaricata*, *Isopogon divaricatus*. *P. fucifolia*, *Petrophila pulchella*.
- Prunella Pennsylvanica*, *P. vulgaris elongata*. *P. hirta*, *P. vulgaris hispida*. *P. incisa*, *P. vulgaris pinnatifida*.
- Prunus Armeniaca*. *P. Armeniaca*, *A. vulgaris*. *P. pubescens* and *serrulata*, *Cerasus*. *P. rubra*, *C. padus rubra*. *P. Sinensis*, *Amygdalus pumila*.
- Psidium decaspermum*, *Nelitris Jambosella*. *P. Chinense*, *P. Cattleyanum*. *P. sapidissimum*, *P. pomiferum sapidissimum*.
- Psoralea pedunculata*, *P. sericea*. *P. intermedia*, *P. verrucosa intermedia*.
- Psychotria crocea* and *rigida*, *Palicourea*. *P. lineata*, *Palicourea spicata*. *P. racemosa*, *Nonatelia*. *P. involucrata*, *N. officinalis*.
- Psygium elegans*, *Aglaomorpha Meyeriana*.
- Ptelea ovata*, *Ptelidium ovatum*. *P. pinata*, *Blackburnia*.
- Pteris argentea*, *auriculata*, *farinosa*, *intramarginalis*, and *pedata*, *Cassebeera*. *P. hastata*, *C. hastata*, *Doryopteris hastata*, and *Allosorus calomelanos*. *P. flexuosa*, *Platyloma flexuosa* and *Allosorus flexuosus*. *P. gracilis*, *Cheilanthes*. *P. argyrophylla* and *decursiva*, *C. farinosa*. *P. calomelanos*, *Allosorus*. *P. crispa*, *A. crispus*. *P. cordata*, *A. cordatus*. *P. angustifolia* and *lanceolata*, *Tænitis*. *P. bisaurita* and *nemoralis*, *Campteris*. *P. piloselloides* and *trichomanoides*, *Nothochlæna*. *P. aurita*, in-

termedia, and splendens, *Litobrochia*.
P. elegans, *P. discolor*. *P. collina* and
palmata, *Doryopteris*. *P. sagittata*, *D.*
sagittifolia. *P. imbricata*, *Jamesonia*.
P. lanuginosa, *Eriochasma*.
Pterocarpus glabra, *buxifolius*, and *foliis-*
aggregatis, *Brya ebenus*. *P. latifolius*,
Lonchocarpus. *P. lunatus*, *Drepano-*
carpus.
Pteronia chamæpeuce, *Stæhelina*.
Pulmonaria oblongata, *P. angustifolia ob-*
longata.
Pultenæ aspera, *Phyllota*. *P. enchila*,
Spadostyles Sieberi.
Punica granatum album, *P. granatum*
albescens flore-pleno. *P. granatum ple-*
num, *P. granatum rubrum flore-pleno*.
Purshia hispida, *Onosmodium hispidum*.
P. mollis, *O. molle*.
Puya suberosa, *Pitcairnia coarctata*.
Pyrethrum diversifolium, *Brachycome di-*
versifolia. *P. orientale*, *Anthemis Ru-*
dolphiana. *P. grandiflorum*, *P. latifo-*
lium.
Pyrola chlorantha, *P. convoluta*. *P.*
rosea, *P. minor*. *P. maculata*, *Chima-*
phila. *P. umbellata*, *C. corymbosa*.
Pyrus Nussia, *Ootoneaster frigida*. *P. mi-*
crophylla and *uva-ursi*, *C. rotundifolia*.
P. eratægifolia, *Cratægus Florentina*.
P. malus sylvestris, *P. acerba*. *P. sa-*
licifolia, *P. amygdaliformis*. *P. alpina*,
P. aria acutifolia. *P. sylvestris*, *P.*
communis pyrastrer. *P. orientalis*, *P.*
elaagnifolia. *P. pubens*, *P. grandif-*
olia. *P. edulis*, *P. intermedia angus-*
tifolia. *P. Bollwylleriana*, *P. Pollveria*.
P. hybrida and *spuria sambucifolia*, *P.*
spuria pendula. *P. Pashia*, *P. vario-*
losa. *P. Nepalensis*, *P. vestita*. *P.*
sanguinea, *Amelanchier*.
Pyxidantha barbulate, *Diapensia*.

Q.

Quassia excelsa, *Simaruba*. *Q. sima-*
ruba, *S. officinalis*.
Queltia concolor, *Narcissus Haworthia*.
Quercus conglomerata, *Q. Apennina*. *Q.*
hemisphærica, *Q. aquatica maritima*.
Q. nana, *Q. aquatica nana*. *Q. Aus-*
triaca, *Q. cerris Austriaca*. *Q. cerris*
dentata, *Q. cerris Fulhamensis*. *Q.*
Ragnal, *Q. cerris Ragnal*. *Q. frondosa*,
Q. cerris vulgaris. *Q. discolor*, *elongata*,
and triloba, *Q. falcata*. *Q. lanuginosa*,
Q. lanata. *Q. aquatica*, *Q. nigra*. *Q.*
stellata, *Q. obtusiloba*. *Q. Banisteri* and
montana, *Q. palustris*. *Q. fastigiata*, *Q.*

pedunculata fastigiata. *Q. laciniata*, *Q.*
pedunculata heterophylla. *Q. pendula*,
Q. pedunculata pendula. *Q. purpurea*,
Q. pedunculata purpurea. *Q. cinerea*,
Q. phellos cinerea. *Q. sericea*, *Q. phellos*
sericea. *Q. castanea*, *Q. prinus acumi-*
nata. *Q. montana*, *Q. prinus monticola*.
Q. prinoides, *Q. prinus pumila*. *Q.*
Michauxii, *Q. prinus tomentosa*. *Q.*
Tauzin, *Q. Pyrenaica*. *Q. Robur*, *Q.*
sessiliflora. *Q. pubescens*, *Q. sessiliflora*
pubescens.

R.

Rafnia amplexicaulis, *Vascoa*.
Rajania quinata, *Akebia*.
Randia aculeata, *R. latifolia*. *R. longi-*
flora, *R. macrantha*. *R. obovata*, *R.*
pubescens and *latifolia*.
Ranunculus grandifolius and *Teneriffæ*,
R. cortusæfolius. *R. Olyssiponen-*
sis and *Lusitanicus*, *R. spicatus*. *R. aureus*
and villosus, *R. Breynianus* and *nemo-*
rosus pauciflorus. *R. Pyrenæus*, *R.*
Gouani. *R. Thomasi*, *R. gregarius*. *R.*
sericeus, *R. Illyricus*. *R. apiifolius*, *R.*
Monspeliacus cuneatus. *R. Monspelia-*
cus, *R. Monspeliacus rotundifolius*. *R.*
polyanthemus, *R. nemorosus*. *R. pence-*
danifolius, *R. pantothrix fluviatilis*. *R.*
Pyrenæus plantagineus, *R. plantagineus*.
R. aconitifolius, *R. platanifolius flore-*
pleno. *R. muricatus* and *Brasilianus*,
R. ventricosus. *R. Breynianus*, *R.*
Villarsii.
Raphanus tenellus, *Chorispora tenella*.
R. arcuatus, *C. tenella arcuata*.
Raphia pedunculata and *vinifera*, *Sa-*
gus.
Raphiolepis Indica, *R. phæostemon*.
Ravenala Madagascariensis, *Urania spe-*
ciosa. See URANIA.
Reaumuria linifolia, *R. hypericoides*.
Renealmia ramosa lutea, *Pitcairnia co-*
arctata.
Rhamnus Capensis, *lævigatus*, and *mys-*
tacinus, *Ceanothus*. *R. sphærosper-*
mus, *C. sphærocarpus*. *R. lineatus* and
volubilis, *Berchemia*. *R. Clusii*, *R.*
alaternus angustifolius. *R. Willdeno-*
vianus, *R. longifolius*. *R. rupestris*, *R.*
pumilus. *R. pumilus*, *R. Valentinus*
and Wulfenii.
Rhapis acaulis, *Sabal Adansoni*.
Rheum Emodi, *R. australe*.
Rhexia, *Arthrostemma*. *R. glomerata*,
Osbeckia glomerata albiflora. *R. holo-*
sericea, *Lasiandra argentea*. *R. aquatica*,

- Aciotis*. *R. acisanthera*, *Acisanthera quadrata*. *R. trivalvis*, *Microlicia bivalvis*. *R. viminea*, *Pleroma*.
- Rhodiola Sibirica*, *Sedum Altaicum*. *R. rosea*, *S. rhodiola*.
- Rhodochiton volubile*, *Lophospermum atro-sanguineum*.
- Rhododendron salignum*, *elaagnoides*, and *obovatum*, *R. lepidotum*. *R. obtusum*, *R. Ponticum obtusum*. *R. aromaticum*, *R. anthopogon*. *R. cinnamonicum*, *R. arboreum cinnamonicum*. *R. album*, *R. niveum*. *R. officinale*, *R. chrysanthum*. *R. myrtifolium*, *R. Ponticum myrtifolium*. *R. Roylei*, *R. cinnabarinum*.
- Rhodora Canadensis*, *Rhododendron rhodora*.
- Rhus Bucku amela*, *R. amela*. *R. Caroliniana* and *elegans*, *R. glabra coccinea*. *R. Theezans*, *R. undulata*. *R. venenata*, *R. vernix*. *R. juglandifolia*, *R. vernicifera*. *R. Rœdælijavel*, *Omphalobium Indicum*.
- Rhynchosia violacea*, *Eriosema*.
- Ribes aureum sanguineum*, *R. flavum*. *R. hybridum*, *R. grossularia Besseriana*. *R. reclinatum*, *R. grossularia reclinata*. *R. uva-crispa*, *R. grossularia uva-crispa*. *R. oxyacanthoides*, *R. lacustre*. *R. glandulosum*, *R. prostratum*. *R. laxiflorum*, *R. prostratum laxiflorum*. *R. malvaceum*, *R. sanguineum malvaceum*. *R. stamineum*, *R. speciosum*. *R. Missouriense*, *R. tenuiflorum*.
- Richardia scabra*, *Richardsonia*.
- Richardsonia pilosa*, *R. scabra*.
- Ricotia Ægyptiaca*, *R. lunaria*.
- Robinia Capensis*, *Virgilia sylvatica*. *R. squamata*, *Pictetia*. *R. coccinea*, *Ormosia*. *R. uliginosa*, *Pongamia*. *R. media*, *P. glabra*. *R. sepium* and *sericeus*, *Lonchocarpus*. *R. hispida* and *rosea*, *L. roseus*. *R. violacea*, *L. violaceus*. *R. Altagana* and *frutescens*, *Caragana*. *R. Caragana*, *C. Altagana arborescens*. *R. mollis* and *tomentosa*, *C. mollis*. *R. hybrida*, *ambigua*, and *echinata*, *R. dubia*. *R. grandiflora* and *macrophylla*, *R. hispida macrophylla*. *R. amorphæfolia*, *R. pseudo-acacia amorphæfolia*. *R. monstrosa*, *R. pseudo-acacia monstrosa*. *R. pendula*, *R. pseudo-acacia pendula*. *R. procera*, *R. pseudo-acacia procera*. *R. sophoræfolia*, *R. pseudo-acacia sophoræfolia*. *R. stricta*, *R. pseudo-acacia stricta*. *R. inermis*, *R. pseudo-acacia umbraculifera*. *R. halodendron*, *Halimodendron argenteum*. *R. triflora*, *H. argenteum subvirescens*.
- Roella decumbens*, *Campanula Capensis*. *R. filiformis*, *R. squarrosa Bergii*.
- Rondeletia*, *Wendlandia*.
- Rosa berberifolia*, *Lowea*. *R. rubiginosa inodora*, *R. Borrieri*. *R. canina cæsia*, *R. cæsia*. *R. leucantha*, *R. Caucæsea*. *R. canina dumetorum*, *R. dumetorum*. *R. parvifolia*, *R. Gallica parvifolia*. *R. odorata*, *R. Indica odoratissima*. *R. floribunda*, *R. Klukii*. *R. laxa*, *R. Lindleyi*. *R. Eglanteria*, *R. lutea*. *R. platyphylla* and *Roxburghii*, *R. multiflora Grevillei*. *R. scabriuscula*, *R. tomentosa scabriuscula*.
- Rubentia angustifolia*, *Toddalia*. *R. olivina*, *Elæodendron orientale*.
- Rubus pistillatus*, *R. acaulis*. *R. pedunculatus*, *R. biflorus*. *R. vulgaris*, *R. corylifolius*. *R. flavus*, *R. ellipticus*. *R. inermis*, *R. flagellaris inermis*. *R. discolor* and *abruptus*, *R. fruticosus*. *R. fruticosus plenus*, *R. fruticosus flore-roseo-pleno*. *R. fruticosus albus*, *R. fruticosus leucocarpus*. *R. paniculatus*, *R. Linkianus*. *R. pauciflorus*, *R. micranthus*. *R. villosus vulpinus*, *R. Sprengelii*. *R. ægopodioides*, *R. triflorus*.
- Rudbeckia amplexifolia* and *perfoliata*, *Dracopis amplexicaulis*. *R. napifolia*, *purpurea*, and *serotina*, *Echinacea*. *R. amplexicaulis*, *R. amplexifolia* and *Dracopis amplexicaulis*.
- Ruellia cristata*, *Aphelandra*. *R. infundibuliformis*, *Crossandra undulæfolia*. *R. ringens*, *Hygrophila*. *R. anisophylla* and *glomerata*, *Goldfussia*. *R. oblongifolia*, *Calophanes*. *R. Barlerioides* and *bracteata*, *Petalidium Barlerioides*. *R. Coromandeliana*, *secunda*, *intrusa*, and *obliqua*, *Asystasia Coromandeliana*. *R. Sabiniana*, *Strobilanthes*.
- Rulingia polyphylla* and *varians*, *Anacampseros*. *R. anacampseros*, *A. rotundifolia*.

S.

Sagittaria hastata, *S. Doniana*.*Sagus palma-pinus*, *S. vinifera*.

Salix violacea, *S. acutifolia*. *S. cærulea*, *S. alba cærulea*. *S. uliginosa*, *S. aurita*. *S. annularis*, *S. Babylonica crispa*. *S. Napoleona*, *S. Babylonica Napoleona*. *S. præcox*, *S. Daphnoides*. *S. argentea*, *S. fusca argentea*. *S. ascendens* and *parvifolia*, *S. fusca fetida*. *S. incubacea*, *S. fusca incubacea*. *S. prostrata*, *S. fusca prostrata*. *S. repens*, *S. fusca repens*. *S. malifolia*, *S. hastata mali-*

- folia*, *S. serrulata*, *S. hastata serrulata*. *S. riparia*, *S. incana*. *S. arbutifolia*, *S. myrsinites*. *S. phyllifolia*, *S. radicans*. *S. Fluggeana*, *S. salviaefolia*. *S. Hoppeana*, *S. triandra Hoppeana*.
Salmia angustifolia, *Carludovica*.
Salpiglossis atro-purpurea, *S. sinuata*. *S. picta*, *S. sinuata picta*. *S. straminea*, *S. sinuata straminea*. *S. linearis*, *Petunia intermedia*. *S. integrifolia*, *P. violacea*.
Salvia carnosa, *Audibertia incana*. *S. patula* and *pyramidalis*, *S. argentea*. *S. colorata*, *S. aurea*. *S. polymorpha*, *S. clandestina*. *S. multifida* and *laciniata*, *S. clandestina multifida*. *S. rosea*, *S. eoccinea*. *S. prismatica*, *S. Hispanica*. *S. Boosiana*, *S. lamiifolia*. *S. trichostemoides*, *S. lanceolata*. *S. pilantha*, *S. Linkiana*. *S. Abyssinica* and *applanata*, *S. Nilotica*. *S. betonicæfolia* and *hastata*, *S. nutans*. *S. linearifolia*, *S. polystachya*. *S. hæmatodes*, *Tenorii*, and *variegata*, *S. pratensis*. *S. foliosa*, *S. rhombifolia*. *S. vulnerariæfolia* and *Hablitziana*, *S. scabiosæfolia*. *S. Simsiæna*, *S. sclarea*. *S. elongata* and *bulbata*, *S. sclareoides*. *S. Dominica*, *S. serotina*. *S. campestris* and *mollis*, *S. Sibthorpii*. *S. Ægyptiaca*, *S. spinosa*. *S. nemorosa* and *Valentina*, *S. sylvestris*. *S. coarctata*, *S. Tingitana*. *S. oblongata*, *S. verbenaca oblongifolia*. *S. affinis*, *amplexicaulis*, and *gigantea*, *S. virgata*. *S. truncata* and *Spielmanni*, *S. viridis*.
Samara pentandra, *Myrsine Samara*.
Sambucus nigra variegata, *S. nigra foliis-argenteis*. *S. aurea*, *S. nigra foliis-luteis*. *S. laciniata*, *S. nigra laciniata*. *S. nigra albidula*, *S. nigra leuocarpa*. *S. viridis*, *S. nigra virescens*.
Samyda viridiflora, *S. macrophylla*. *S. pubescens*, *S. rosea*.
Sanguisorba rubra, *S. carnea*.
Sansevieria sessiliflora, *S. carnea*. *S. Javanica*, *Dracæna elliptica*.
Santolina anthemoides, *Lasiospermum*. *S. erithmifolia*, *L. erithmifolium*. *S. eriosperma*, *L. eriospermum*. *S. alpina* and *erecta*, *L. pedunculare*. *S. rigida*, *L. rigidum*.
Sapindus spinosus, *Xanthoxylon sapindoides*.
Saponaria Illyrica, *Tunica*.
Sarcanthus guttatus, *Saccolabium guttatum*.
Sarracenia psittacina, *S. rubra*. *S. adunca*, *S. variolaris*.
Satureia capitata, *Thymus capitatus*. *S.*
Juliana, *approximata*, and *Græca*, *Micromeria*. *S. congesta* and *tenuifolia*, *M. Græca densiflora*. *S. hirsuta*, *M. Juliana hirsuta*. *S. viminea*, *M. obovata*. *S. obovata*, *S. virgata*.
Sauvagesia nutans, *S. erecta*.
Saxifraga aquatica, *S. adscendens*. *S. lævis*, *S. affinis*. *S. Grælandica*, *S. cæspitosa*. *S. palmata*, *S. decipiens*. *S. crenata*, *S. geum crenata*. *S. dentata*, *S. geum dentata*. *S. polita*, *S. geum polita*. *S. sphæroidea*, *S. hirsuta sphæroidea*. *S. recta*, *S. intacta*. *S. muscoides*, *S. moschata*. *S. moschata*, *S. muscoides* and *pygmaea*. *S. congesta*, *S. nivalis*. *S. cuscuteformis*, *S. sarmentosa cuscuteformis*. *S. dissimilis*, *S. stellaris dissimilis*. *S. punctata*, *S. umbrosa punctata*. *S. serratifolia*, *S. umbrosa serratifolia*.
Scabiosa, *Asterocephalus*. *S. pseudo-australis*, *S. australis*. *S. Norica*, *S. stricta*.
Sceptranthus Drummondii, *Cooperia pedunculata*.
Schæfferia lateriflora, *Drypetes crocea*.
Schellolepis. See GONIOPHLEBIUM.
Schousbæa coccinea, *Cacoucia*.
Schrebera albens, *Eleodendron glaucum*.
Schubertia Capensis, *Taxodium Capense*. *S. disticha*, *T. distichum*. *S. disticha pendula*, *T. distichum nutans*.
Schwagrichenia flavida, *Anigozanthos*.
Scilla monophylla, *S. pumila*. *S. bifolia rubra*, *S. rosea*. *S. serotina*, *Uropetalon fidvum*. *S. pomeridiana*, *Anterium*. *S. maritima*, *Ornithogalum squilla*. *S. Romana*, *Bellevalia operculata*.
Scopolopendrium palmatum, *S. hemionitis*.
Scopolia atropoides, *S. Carniolica*. *S. aculeata*, *Toddalia*.
Scorzonera taraxacifolia, *Podospermum taraxacifolium*. *S. graminifolia*, *S. glustifolia*. *S. Austriaca*, *S. humilis*.
Scutellaria Cretica, *Teucrium Arduini*. *S. Altaica*, *S. alpina*. *S. lupulina*, *S. alpina lutea*. *S. decumbens*, *S. hirta*. *S. Caroliniana* and *hyssoipifolia*, *S. integrifolia*. *S. ambigua*, *S. parvula*. *S. rubicunda*, *S. peregrina*.
Scuticaria Hardwenii, *Bifrenaria*.
Scytalia trijuga, *Melicocca*.
Sedum fruticulosum and *Jacquini*, *S. altissimum*. *S. spinosum*, *Umbilicus*. *S. glaucum*, *S. Andersonii*. *S. rupestre*, *S. anopetalum*. *S. maximum*, *S. latifolium*. *S. album micranthum*, *S. micranthum*. *S. hexapetalum* and *quinquefidum*, *S. quadrifidum*. *S. collinum*, *S. reflexum collinum*. *S.*

- recurvatum*, *S. reflexum recurvatum*.
S. Guettardi and *Monregalense*, *S. repens*. *S. minus*, *S. rupestre*. *S. annuum*, *S. saxatile*. *S. sempervivoides*, *S. sempervivum*. *S. spirale*, *S. sexangulare*. *S. argutum*, *paucident*, and *triphylum*, *S. telephium*. *S. portulacoides*, *S. ternatum*.
Selas lanceolata, *Ximenia* and *Gela*.
Sempervivum cuspidatum, *Umbilicus spinosum*. *S. sediforme*, *Sedum altissimum*. *S. calyciforme*, *S. aizoides*. *S. lineolare*, *S. barbatum*. *S. barbatum* and *ciliatum*, *S. caespitosum*. *S. laxum*, *S. dichotomum*. *S. grandiflorum*, *S. globiferum*. *S. soboliferum*, *S. hirtum*. *S. villosum*, *S. stellatum*.
Senecia glauca, *Elæodendron glaucum*.
Senecio incanus, *S. leucophyllus*. *S. graminifolius*, *S. reclinator*. *S. nemorensis* and *persicæfolius*, *S. Tournefortii*. *S. racemosus*, *Cineraria auriculata*.
Septas globiflora, *S. Capensis globiflora*.
Seringia ovata, *Ptelidium ovatum*.
Seriphium alopecuroides, *Stæbe reflexa*.
Serratula alata, *S. cyanoides*. *S. linearifolia*, *S. multiflora*. *S. centaurioides*, *S. radiata*. *S. simplex*, *S. Transylvanica*. *S. alpina*, *amara*, *angustifolia*, *discolor*, *pygmæa*, and *salsa*, *Saussurea*. *S. pycnocephala*, *S. liatroides*.
Serruria arenaria, *S. emarginata*.
Sesbania disperma, *Glottidium Floridanum*. *S. coccinea*, *Agati*.
Sibbaldia grandiflora, *Chamærhodes grandiflorus*.
Sicyos edulis, *Sechium edule*.
Sida vitifolia, *Abutilon vitifolium*.
Sideranthus spinulosus and *villosus*, *Amellus*.
Sideritis decumbens, *Stachys Lamarchii*. *S. linearifolia*, *Sideritis stenophylla*. *S. alpina* and *Pyrenaica*, *S. scordioides alpina*. *S. hyssopifolia*, *S. scordioides angustifolia*.
Sideroxylon melanophleum, *Myrsine melanophleas*. *S. spinosum*, *Argania sideroxylon*.
Simisia ficifolia, *Ximenesia fœtida*.
Siphonanthus Indica, *Clerodendron siphonanthus*.
Siphonia elastica, *S. Caluchus*.
Sisyrinchium Bermudianum, *S. Nuttallii*. *S. formosum*, *Libertia formosus*.
Skinnera excorticata, *Fuchsia*.
Solanum Quitense, *S. angulatum*. *S. violaceum*, *S. Brownii*. *S. undatum*, *S. incanum*. *S. longifolium*, *S. longi-*
- florum*. *S. ovigerum*, *S. melongena ovigerum*. *S. insanum*, *S. melongena esculentum*. *S. uniflorum*, *S. monanthum*. *S. melanocerasum*, *S. nigrum melanocerasum*. *S. Cervantesii*, *S. pubigerum*. *S. spinosissimum*, *S. pyracantha*. *S. pseudo-lycopersicum*, *Lycopersicum cerasiforme*. *S. lycopersicum*, *L. esculentum*.
Solea verticillata, *Ionidium polygalæfolium*. *S. stricta*, *I. Sprengelianum*.
Solena gracilis and *longiflora*, *Posoqueria*.
Solidago montana, *S. arenaria*. *S. argentea*, *S. pulverulenta*. *S. retrorsa*, *S. recurvata*. *S. bicolor*, *Aster*. *S. urticæfolia*, *Calea*.
Sonchus, *Agathyrsus*.
Sophora, *Virgilia*. *S. fabacea*, *Thermopsis*. *S. alpina*, *T. Corgonensis*. *S. argentea*, *Ammodendron Sieversii*. *S. sericea*, *Edwardsia nitida*.
Sophronia cernua, *Sophronitis*.
Sorbus microcarpa, *Pyrus*. *S. latifolius*, *P. intermedia latifolia*. *S. hybrida*, *P. pinnatifida*. *S. domestica*, *P. sorbus*.
Sparaxis bicolor, *Synnetia*.
Spartium patens, *Cytisus*. *S. multiflorum*, *C. albus*. *S. spinosum* and *villosum*, *C. laniger*. *S. nubigenum*, *C. nubigenus*. *S. spinosum*, *C. spinosus*. *S. Telonensis*, *Adenocarpus*. *S. complicatum*, *A. parvifolius*. *S. Æthnense*, *ferox*, *patens*, and *scorpius*, *Genista*. *S. angulatum*, *G. angulata*. *S. aphyllum*, *G. aphylla*. *S. cinereum*, *G. cinerea*. *S. sericeum*, *G. clavata*. *S. congestum*, *G. congesta*. *S. linifolium*, *G. linifolia*. *S. monospermum*, *G. monosperma*. *S. parviflorum*, *G. parviflora*. *S. radiatum*, *G. radiata*. *S. sphærocarpon*, *G. sphærocarpa*. *S. umbellatum*, *G. umbellata*. *S. virgatum*, *G. virgata*.
Spermacoe stricta and *verticillata*, *Borreria*. *S. verticillata*, *B. commutata*. *S. Sumatrensis* and *teres*, *Knoxia*. *S. Roxburghii*, *K. laevis*. *S. hirta*, *Mitracarpum villosum*.
Spermadietyon suaveolens, *Hamiltonia*.
S. azureum, *H. scabra*.
Sphærotele coccinea, *Stenomesson coccineum*.
Spirea hypericifolia acuta, *S. acutifolia*. *S. media*, *S. chamædrifolia media*. *S. oblongifolia*, *S. chamædrifolia oblongifolia*. *S. sororia*, *S. corymbosa sororia*. *S. Bessieriana*, *S. crenata*. *S. ulmaria denudata*, *S. denudata*. *S. Altaiensis*, *S. levigata*. *S. hypericifolia crenata*,

- S. obovata*. *S. carpinifolia*, *S. salicifolia latifolia*. *S. salicifolia alba*, *S. salicifolia paniculata*. *S. hypericifolia Savranica*, *S. Savranica*. *S. grandiflora*, *S. sorbifolia alpina*. *S. triloba*, *S. trilobata*. *S. hypericifolia Uralensis* and *crenata*, *S. Uralensis*.
- Spiranthes bicolor*, *elata*, *pieta*, and *pudica*, *Neottia*.
- Spondias myrobalanus*, *S. lutea*. *S. dulcis* and *mangifera*, *Poupartia*. *S. Mombin*, *S. purpurea*.
- Stachys salvisifolia*, *S. Italica*. *S. Balbisii*, *S. pubescens*.
- Stæhelia gnaphaloides*, *Leyssera squarrosa*.
- Stapelia mammillaris*, *Piarranthus*. *S. arida*, *P. aridus*. *S. Gussoneana*, *P. Gussoneanus*. *S. incarnata*, *P. incarnatus*. *S. parviflora*, *P. parviflorus*. *S. pulla*, *P. pullus*. *S. deflexa*, *S. reflexa*. *S. grandiflora*, *S. spectabilis*. *S. ocellata* and *reticulata*, *Huernia*.
- Statice lyrata*, *S. spicata*. *S. spatulata*, *S. Willdenoviana*. *S. armeria*, *Armeria maritima*.
- Stauntonia latifolia*, *Holboia*.
- Stegania falcata*, *nuda*, and *procera*, *Lomaria*.
- Stellera chamæjasme*, *Passerina Stelleri*.
- Stenactis speciosa*, *Erigeron speciosum*.
- Stenanthium*. See VERATRUM.
- Stenochilus elegans*, *Lamourouxia multifida*.
- Sterculia Balanghas*, *S. nobilis*. *S. pubescens*, *S. tetracantha*.
- Sterrebeckia laterifolia*, *Singana Guianensis*.
- Stevia callosa* and *pedata*, *Florestina*. *S. canescens*, *S. incanescens*. *S. linearis*, *Palafoxia*.
- Stizolobium pruriens*, *Mucuna*. *S. altissimum*, *M. altissima*.
- Stobæa glomerata*, *Cynara*.
- Streblorhiza speciosa*, *Olianthus carneus*.
- Strophanthus divergens*, *S. Chinensis*.
- Struthiola stricta*, *S. erecta*.
- Sturmia lucida*, *Stenostomum lucidum*.
- Styrax glabrum*, *S. levigatum*.
- Stylidium glandulosum*, *S. fruticosum*. *S. loricifolium*, *S. tenuifolium*.
- Stylolepis gracilis*, *Podolepis*. See PODOLEPIS.
- Stylophorum diphyllum*, *Ohioense*, and *petiolatum*, *Meconopsis diphyllum*.
- Styphelia obovatus* and *Richel*, *Leucopogon*. *S. glauca*, *Monotoca lineata*.
- Symphonia globuliflora*, *Moronobea coccinea*.
- Symphoria montana*, *Symphoricarpus montanus*. *S. racemosa*, *S. racemosus*. *S. glomerata*, *S. vulgaris*. *S. glomerata foliis-variegatis*, *S. vulgaris foliis-variegatis*.
- Symphoricarpus puniceus*, *Lonicera*.
- Symphytum Bohemicum*, *S. officinale Bohemicum*. *S. bullatum*, *S. Tauricum bullatum*.
- Swertia corniculata*, *S. Michauxiana*. *S. rotata*, *Pleurogyne*.
- Swietenia chloroxylon*, *Chloroxylon Swietenia*.
- Syphocampylus*, *Siphocampylus*.

T.

- Tabernæmontana citrifolia*, *T. alba*. *T. multiflora*, *T. cymosa*. *T. tamaquarina*, *T. odorata*. *T. Amsonia*, *Amsonia latifolia*.
- Tacca cristata* and *Rafflesiana*, *T. integrifolia*. *T. phalifera*, *Arum campanulatum*.
- Tachia longifolia*, *Leianthus longifolius*.
- Tacsonia quadriglandulosa* and *quadridentata*, *T. sanguinea*.
- Tænitis furcata*, *Pteropsis*.
- Talinum anacampseros*, *Anacampseros rotundifolia*. *T. paniculatum*, *Calandrinia paniculata*. *T. ciliatum*, *C. ciliata*. *T. patens*, *T. Andrewsii*. *T. fruticosum*, *T. crassifolia albiflorum*.
- Taligalea campestris*, *Amasonia erecta*.
- Tamarix Dahurica* and *Germanica*, *Myricaria*. *T. articulata*, *T. orientalis*.
- Tamonea verbenacea*, *T. Curassavica*.
- Tamus elephantipes*, *Testudinaria*.
- Tapogomia purpurea* and *violacea*, *Oephaelis*.
- Tarchonanthus dentata*, *Brachylæna nerriifolia*.
- Taxanthema australis*, *Statice*.
- Taxodium Japonicum*, *Cryptomeria Japonica*. *T. Sinense pendulum*, *T. distichum pendulum*. *T. Sinense*, *T. distichum Sinense*.
- Taxus Harringtonia* and *Inukaja*, *Cephalotaxus pedunculata*. *T. baccata* and *coriacea*, *C. drupacea*. *T. fastigiata*, *Hibernica*, and *baccata Hibernica*. *T. baccata fastigiata*.
- Tecoma incisa*, *T. stans incisa*.
- Teesdalia nudicaulis*, *T. Iberis*. *T. regularis*, *T. lepidium*.
- Tenoria Canadensis*, *Crithmum latifolium*. *T. arborescens*, *Heteromorpha*. *T. canescens*, *frutescens*, *fruticosum*, *plantagineum*, and *spinosum*, *Bupleurum*. *T. coriaceum*, *B. Gibraltaria*.

- Terminalia** Benzoin, *T. angustifolia*. *T. subcordata*, *T. Catappa subcordata*. *T. Madagascariensis*, *T. Fatræa*. *T. alba*, *Dracæna elliptica*.
- Terpanthus** jasminoides, *Spiranthera odoratissima*.
- Tetracera** Calinea, *Doliocarpus*.
- Tetramerium** paniculatum, *Coffea paniculata*. *T. odoratissimum*, *Faramea odoratissima*.
- Tetranthera** involucrata, *T. sebifera*.
- Teucrium** Sibiricum, *Nepeta Sibirica*. *T. flavum* and capitatum, *T. polium angustifolium*. *T. aureum*, *T. polium flavescens*. *T. orchideum*, *T. Arduini*. *T. latifolium*, *T. flavum*.
- Thalictrum** rugosum, *T. Carolinianum*. *T. minus*, *T. collinum*. *T. corynellum*, *T. Cornuti*. *T. revolutum*, *T. Cornuti revolutum*. *T. ambiguum*, *T. elatum ambiguum*. *T. vaginatum*, *T. flavum vaginatum*. *T. styloideum*, *T. fetidum*. *T. speciosum*, *T. glaucum*. *T. diffusum*, *T. lucidum*. *T. minus*, *T. rugosum discolor*.
- Thalamia** nucifera, *Podocarpus*. *T. asplenifolia*, *P. asplenifolius*.
- Thea** Chinensis Bohea, *T. Bohea*. *T. Chinensis viridis*, *T. viridis*.
- Theobroma** guazuma, *Guazuma ulmifolia*.
- Theophrasta** longifolia, *Clavijsa ornata*.
- Thermopsis** rhombifolia, *T. fabacea*. *T. lupinoides*, *T. lanceolata*.
- Thesium** drupaceum, *Leptomeria Billardieri*.
- Thlaspi** luteum, *Bivonæa lutea*. *T. saxatile*, *Æthionema*. *T. Arabicum*, *Æ. Buxbaumii*.
- Thuja** articulata, *Callitris quadrivalvis*. *T. sphæroidea*, *Cupressus thyoides*. *T. sphæroidalis*, *Chamecyparis sphæroidea*. *T. pyramidalis*, *T. orientalis stricta*. *T. Tatarica*, *T. orientalis Tatarica*.
- Thymra** Caroliniana, *Macbridea pulchra*. *T. verticillata*, *T. spicata*. *T. ciliata*, *Thymus ciliatus*.
- Thymus** grandiflorus, herba-barona, heterophyllus, and suaveolens, *Acinos*. *T. tragoriganum*, *Satureia thymra*. *T. acicularis*, odoratissimus, and zygis, *T. angustifolius*. *T. Creticus* and *Marinosci*, *T. capitatus*. *T. Marschallianus*, *T. Pannonicus*. *T. exserens*, *T. serpyllum*. *T. citriodorus*, *T. serpyllum citratus*. *T. lanuginosus*, *T. serpyllum lanuginosus*. *T. montanus* and nummularius, *T. serpyllum montanus*. *T. collinus*, *T. serpyllum vulgaris*. *T. Teneriffæ*, *Micromeria*. *T. ericæfolius*, *M. varia*. *T. lucidus*, *Ziziphora clinopodioides canescens*. *T. Carolinianus*, *Calamintha*.
- Thysacanthus** strictus, *Salpizantha coccinea*. *T. rutilans*, *T. Schomburghianus*.
- Tigaria** tridentata, *Purshia*.
- Tigridia** Herberti, *Cypella*. *T. violacea*, *Beatonia atrata*.
- Tilia** argentea, *T. alba*. *T. glabra* and *Canadensis*, *T. Americana*. *T. heterophylla*, *T. Americana heterophylla*. *T. laxiflora*, *T. Americana laxiflora*. *T. pubescens*, *T. Americana pubescens*. *T. pubescens leptophylla*, *T. Americana pubescens leptophylla*. *T. intermedia*, *T. Europæa*. *T. platyphylla laciniata*, *T. Europæa laciniata*. *T. microphylla*, *T. Europæa microphylla*. *T. platyphylla*, *T. Europæa platyphylla*. *T. rubra*, *T. Europæa rubra*.
- Tillandsia**, *Vriesia*.
- Tithymalus** pendulus, *Euphorbia pendula*. *T. geniculatus*, *E. repanda*.
- Tittmannia** ovata, *Vandellia crustacea*. *T. viscosa*, *V. hirsuta*.
- Torenia** diffusa, *Vandellia Roxburghii*. *T. scabra*, *Artanema fimbriatum*.
- Torreya** nucifera, *Taxus*.
- Trachylobium** Martianum, *Hymenæa ver-rucosa*.
- Tradescantia** multiflora, *T. procumbens*. *T. zanonis*, *Campelia*.
- Tragopogon** livescens, *T. dubius*. *T. ruber*, *T. roseus*.
- Tragium** Tauricum, *Ledebouria hyacin-thina*.
- Treisia** hystrix, *Euphorbia*. *T. clava*, *E. Haworthii*.
- Trivirania** heterophylla, *Achimenes*. *T. coccinea*, *A. coccinea* and *T. pulchella*.
- Tribrachia** pendula, *Bolbophyllum recur-vum*.
- Tricratus** admirabilis, *Abronia umbellata*.
- Trichilia** glabra, *T. Havanensis*.
- Trichodesma** Kotschyannum, *T. Zeylanicum*.
- Trichomanes** gibberosa, *Davallia*.
- Trichonema** cruciatum, *T. longifolium*. *T. monadelphæ*, *Spatalanthus speciosus*.
- Tricophyllum** oppositifolium, *Eriophyllum*. *T. lanatum*, *E. caespitosum*.
- Trichopilia** marginata, *T. coccinea*. *T. candida*, *Pilumna fragrans*.
- Trichostemma** brachiatum, *Isanthus cæruleus*.
- Tridentea**. See STAPELIA.
- Trifolium** strictum, *T. parviflorum*. *T. campestre*, *T. procumbens*. *T. squarrososum*, *T. squarrososum flavicans*. *T.*

pratense flavicans, *T. vaginatum*. *T. Cupani*, *T. alatum*. *T. hispidum*, *T. hirtum*. *T. pictum*, *T. hirtum pictum*. *T. Molinerii*, *T. incarnatum Molinerii*. *T. conicum*, *T. Kitaibelianum*. *T. aristatum*, *T. ligusticum*. *T. albens*, *T. lupinaster albiflorum*. *T. irregulare*, *T. maritimum*.

Trigonella Indica, *Lotus Indicus*.

Trillium pictum, *T. erythrocarpum*. *T. erythrocarpum*, *T. grandiflorum*. *T. pusillum*, *T. pumilum*.

Triphasia aurantiola, *T. trifoliata*.

Tripsacum hermaphroditum, *Antheophora elegans*.

Tristania laurina, *T. macrophylla*.

Tritoma flammea, *Blandfordia*.

Tritomanthe uvaria, *Tritoma*.

Trollius laxus, *T. Americanus*. *T. ranunculinus*, *T. patulus*.

Tromsdorffia speciosa, *Liebigia*.

Tropæolum pentaphyllum, *Chymocarpus pentaphyllus*. *T. peregrinum*, *T. aduncum*.

Tulipa acuminata, *T. cornuta*. *T. Brey-niana*, *Melanthium uniflorum*.

Turgosia aloides, capitellata, linguæfolia, obovata, tomentosa, pertusula, and turrita, *Crassula*. *T. pertusa*, *C. corymbulosa*.

Turnera elegans, *T. trioniflora*.

Turpinia punctata, *Poiretia scandens*.

Turritis alpina, *Arabis ciliata*.

Tussilago Bohemica, *T. laevigata*. *T. paradoxa*, *T. nivea*. *T. lobata*, *T. palmata*. *T. tomentosa*, *T. spuria*. *T. integrifolia*, *Chaptalia tomentosa*.

U.

Ulex genistoides, *Stauracanthus aphyllus*. *U. Hibernica*, *U. stricta*.

Ulloa parasitica, *Juanulloa*.

Ullucus tuberosus, *Basella tuberosa*.

Ulmus Chinensis, *U. campestris Chinensis*.

U. stricta, *U. campestris Cornubiensis*.

U. humilis, microphylla, parvifolia,

pumila, and planifolia, *U. campestris planifolia*. *U. Sarniensis*, *U. campestris Sarniensis*. *U. viscosa*, *U. campestris viscosa*. *U. ciliata*, *U. effusa*. *U. pendula*, *U. fulva*. *U. Americana* and

montana vegeta, *U. glabra vegeta*. *U. scabra*, *U. montana*. *U. crispa*, *U. montana crispa*. *U. nemoralis*, *Planera*

Richardi.

Umbilicus Lievenii and *sempervivum*,

Cotyledon.

Unona, *Uvria*.

Urospermum, *Arnopogon*.

Ursinia fœniculacea, *Sphenogyne*.

Uvaria lanceolata, *Guatteria virgata*.

Uvularia Chinensis, *Disporum fulvum*.

V.

Vaccinium myrtilloides, *V. angustifolium*.

V. diffusum, *V. arboreum*. *V. brachy-*

cerum, *V. buxifolium*. *V. prunifolium*,

V. ovatum. *V. amœnum* and disomor-

phum, *V. corymbosum*. *V. virgatum*

angustifolium, *V. corymbosum angusti-*

folium. *V. fuscum* and *formosum*,

V. corymbosum fuscum. *V. virgatum*,

V. corymbosum virgatum. *V. hirtellum*

and *frondosum*, *V. dumosum*. *V. glau-*

cum, *V. frondosum*. *V. venustum*, *V.*

frondosum venustum. *V. Maderense*,

V. padifolium. *V. tenellum*, *V. Penn-*

sylvanicum. *V. parviflorum*, *V. resino-*

sum lutescens. *V. album*, *V. stamineum*

and *corymbosum*. *V. elevatum*, *V. stami-*

neum. *V. macrocarpum*, *Oxycoccus*. *V.*

oxycoccus, *O. palustris*. *V. Brasiliense*,

Gaylussacia pseudo-vaccinium.

Valentia Taurica, *Galium Tauricum*.

Valeriana cardamines, *V. sisymbriifolia*.

V. heterophylla, *V. globulariæfolia*. *V.*

Sibirica, *Patrinia rupestris* and *Sibirica*.

V. Ruthenica, *P. Sibirica*.

Valerianella congesta, *Plectritis*.

Vallota miniata, *Imantophyllum miniatum*.

Vauanthes chloriflora, *Grammanthes*.

Vella aspera, *Boleum asperum*.

Vellozia squamata, *Xerophyllum Sabadilla*.

Veltheimia uvaria and *speciosa*, *Tritoma*

uvaria.

Ventenatia minor, *Stylidium lineare*.

Veratrum Virginicum, *Zygadenus*. *V.*

Sabadilla, *Xerophyllum*.

Verbascum ferrugineum, *V. triste*. *V.*

Myconi, *Ramondia Pyrenaica*.

Verbena Melindres, *V. chamædrifolia*.

V. Drummondii, *V. Lamberti rosea*.

V. erinoides, *V. multifida*. *V. tri-*

phylla, *Aloysia citriodora*.

Verbesina, *Wollastonia*.

Verea acutiflora and *crenata*, *Kalanchoe*.

Vernonia, *Ascaricida*.

Veronica polymorpha, *V. Austriaca*. *V.*

lamiifolia, *V. chamædryis lamiifolia*. *V.*

pulchra, *V. dianthifolia*. *V. incarnata*,

V. elegans. *V. gentianoides*, *V. gen-*

tianifolia. *V. Barrelieri*, *V. hybrida*. *V.*

angustifolia, *V. linariæfolia*. *V. acuta*,

ambigua, and *rigens*, *V. longifolia ab-*

breviata. *V. grossa*, *V. longifolia lati-*

folia. *V. falcata*, *V. nitens falcata*. *V.*

corymbosa, *V. polystachya*. *V. hir-*

suta, *V. setigera*. *V. amethystina*, *V. spuria*. *V. Hostii*, *V. Ticinensis*. *V. pilocarpa*, *V. trichocarpa*.
Viburnum strictum, *V. tinus strictum*. *V. squamatum*, *V. nudum squamatum*. *V. opulus roseum*, *V. opulus sterile*. *V. lucidum*, *V. tinus hirtum*. *V. strictum virgatum*, *V. tinus virgatum*.
Vicia monantha, *V. calcarata*. *V. cracca*, *V. Caroliniana*. *V. atro-purpurea*, *V. Nissoliana*. *V. tenuifolia*, *V. pseudo-cracca*. *V. faba*, *Faba vulgaris*. *V. fruticosa*, *Coursetia tomentosa*.
Vieusseuxia iridioides, *Iris curtropetala*.
Villarsia cordata, *V. lacunosa*.
Vintera Granadensis, *Drimys Winteri*.
Viola sororia, *V. affinis*. *V. Pallasii* and *chrysantha*, *V. Altaica*. *V. Allioni*, *V. arenaria*. *V. lanceolata*, *V. attenuata*. *V. Patrinii Nepalensis*, *V. cespitosa*. *V. multifida*, *V. digitata*. *V. dentata*, *V. emarginata*. *V. Sibirica*, *V. Gmeliniana*. *V. odorata*, *V. Japonica*. *V. stagnina*, *V. lactea*. *V. Hornemaniana*, *V. montana stricta*. *V. primulæfolia*, *V. ovata* and *caespitosa*. *V. prunellæfolia*, *V. papilionacea Patrinii*. *V. digitata*, *V. pedata flabellata*. *V. ranunculifolia*, *V. pedata ranunculifolia*. *V. ericetorum*, *V. pumila ericetorum*. *V. lancifolia*, *V. pumila lancifolia*. *V. litoralis*, *V. pumila litoralis*. *V. Broussonetia*, *V. Ruppii*. *V. saxatilis*, *V. Sudetica*. *V. arvensis*, *V. tricolor arvensis*. *V. Kitaibeliana*, *V. tricolor hirta*. *V. calcarata*, *V. Villarsiana*. *V. Capensis*, *Ionidium Capense*. *V. longifolia*, *Noisetia*.
Vireya retusa, *Rhododendron retusum*.
Virgilia helodes, *Gaillardia bicolor*.
Virola sebifera, *Myristica*.
Viscaria alpina, *Helvetica*, and *neglecta*, *Lychnis*. *V. vulgaris*, *L. viscaria*.
Vitex Negundo, *V. incisa*. *V. rotundifolia*, *V. ovata*.
Vitis laciniosa, *V. vinifera apiifolia*.
Volkameria buxifolia, *Clerodendron buxifolium*. *V. Madagascariense*, *C. Coromandelianum*. *V. angustifolium*, *C. heterophyllum*.
Vulneraria polyphylla, *Anthyllis*. *V. rubrifolia*, *A. Dillenii*.

W.

Wachendorfia paniculata, *W. Hibbertii*.
Wahlenbergia elongata, *W. Capensis*. *W. pendula*, *W. Lobelioides*. *W. Roylei*, *Glossocomia ovata*.
Waitzia. See MORNA.
Waldsteinia Doniana, *Comaropsis*.
Wallrothia, *Vitex*.
Webera, *Stylocoryne*.
Weinmannia paniculata, *Caldcluvia*. *W. trifoliata*, *Platylophus trifoliatum*. *W. venosa*, *Acrophyllum verticillatum*. *W. pinnata*, *W. glabra*.
Willughbeia Zeylanica, *Fagraea*.
Wintera aromatica, *Drimys Winteri*.
Wistaria consequana, *W. Sinensis*. *W. speciosa*, *W. frutescens*.
Woodwardia caudata, *Doodia*. *W. onocleoides*, *W. angustifolia*.

X.

Xanthorrhæa resinosa, *X. hastile*. *X. pumilio*, *X. humilis*.
Xerophyllum setifolium, *X. asphodeloides*.
Xeranthemum sesamoides, *Aphelaxis*.

Y.

Yucca gloriosa, *Y. superba*.

Z.

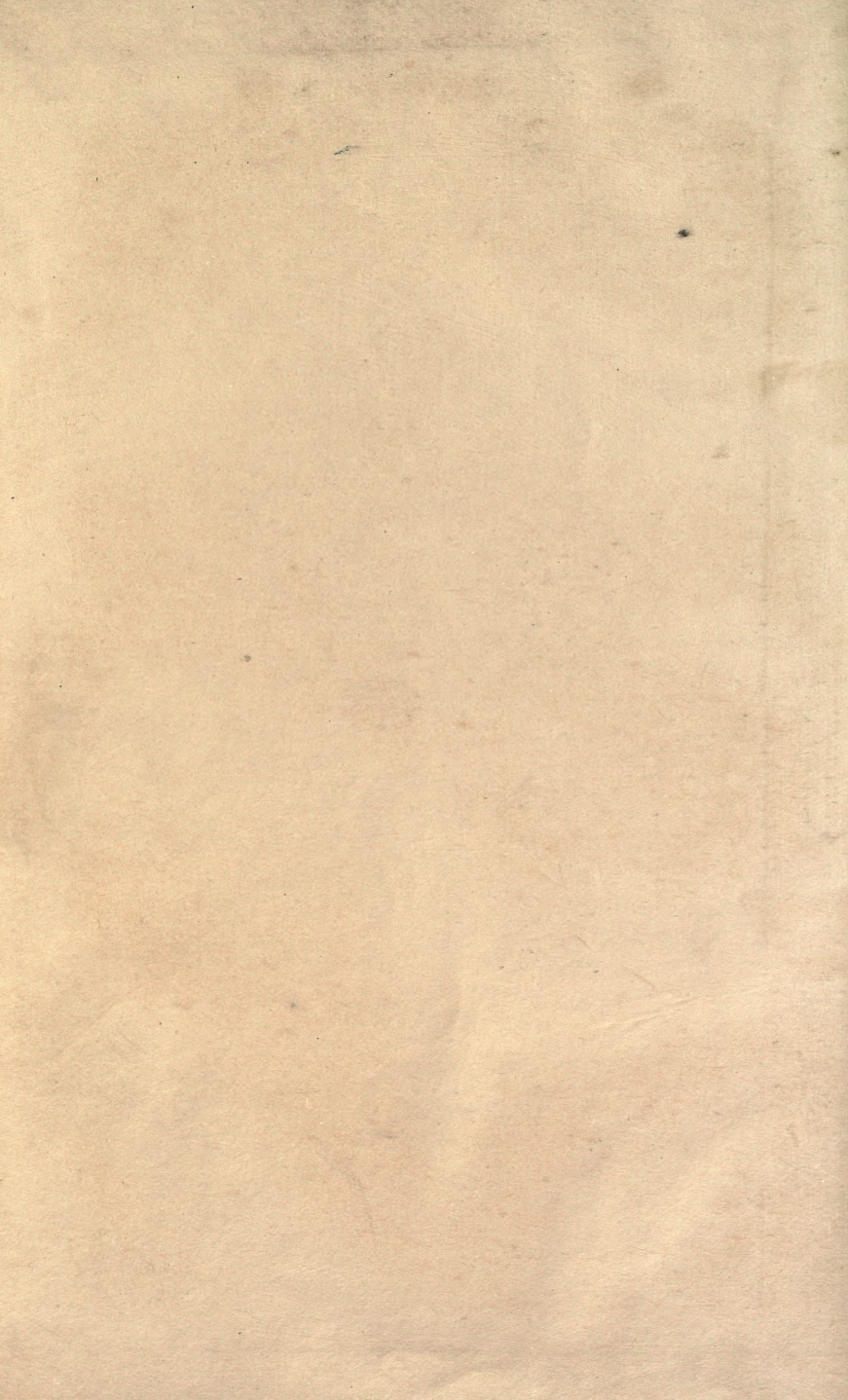
Zephyranthes Drummondii, *Cooperia pedunculata*.
Zieria Smithii, *Z. lanceolata*.
Zinnia violacea, *Z. elegans*.
Zizophora serpyllacea, *Z. clinopodioides canescens* and *clinopodioides media*. *Z. media*, *Z. clinopodioides media*. *Z. Pouschkini*, *Z. dasyantha*.
Zizyphus bubalina, *Z. mucronata*. *Z. sororia*, *Z. spina-Christi trinervia*. *Z. incurvus*, *Paliurus virgatus*. *Z. myrtoides*, *Condalia microphylla*.
Zornia diphylla, *Z. angustifolia*. *Z. elegans*, *Dicerma*. *Z. pulchella*, *D. pulchellum*.
Zuccagnia viridis, *Hyacinthus*.
Zygopetalum crinitum, *Z. Mackayi crinitum*.
Zygophyllum arboreum, *Guaiacum*. *Z. fruticulosum*, *Roella fruticulosa*.

THE END.









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